

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.11.95  
Test oil : ISO 4113

Combination No. : 0 402 046 872

Injection pump  
Pump designation : PES6P120A32ORS3337  
EP type number : 0 412 026 770

Governor  
Governor design. : RQV300...1250PA1246K  
Governor no. : 0 421 815 480

Cust. part No. : CCEP 5155 66-217

Customer-spec. information  
Customer : RVI  
Motor : MIDR 06-02-26 U4  
Power kW : 111.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Overflow quantity  
min. l/h : 135  
Tolerance l/h : +- 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

A01

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.10  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 11.00  
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50

Start of delivery mark

Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.80  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

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Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

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Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

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Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -6.00  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 29.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.31  
Tolerance mm : +- 0.20

Rated speed rpm : 1333  
guide sleeve  
travel mm : 10.40  
Tolerance mm : +- 0.15

Rated speed rpm : 900  
guide sleeve  
travel mm : 6.50  
Tolerance mm : +- 0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 3.77  
Tolerance mm : +- 0.25

Rated speed rpm : 1580

A02

guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1325  
Tolerance 1/min : +- 5

rack travel mm : -6.80  
Rated speed rpm : 1420  
Tolerance 1/min : +- 15

rack travel mm : -10.30  
Tolerance mm : +- 0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 242.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : -6.00  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : < -5.00

Rated speed rpm : 380

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TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750  
rack travel mm : -1.60  
Tolerance mm : + 0.10

Rated speed rpm : 650  
rack travel mm : -1.90  
Tolerance mm : + 0.15

Rated speed rpm : 400  
rack travel mm : -2.50  
Tolerance mm : + 0.20

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START CUT-OUT

Rated speed rpm : > 130  
Rated speed rpm : < 225

Check speed 1/min : > 110  
Check speed 1/min : < 245

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FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -  
Rated speed rpm : 750  
Del. quantity cm3/1000 strokes : 107.0  
Tolerance cm3/1000 strokes : + 3.0  
Check tolerance cm3/1000S. : + 6.0

Aneroid pressure hPa : -  
Rated speed rpm : 650  
Del. quantity cm3/1000 strokes : 94.0

A03

Tolerance cm3/1000 strokes : + 3.0  
Check tolerance cm3/1000S. : + 6.0

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BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1325  
Tolerance 1/min : + 5

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity cm3/1000 strokes : 112.0  
Tolerance cm3/1000 strokes : + 15.0  
Check tolerance cm3/1000S. : + 19.0

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LOW IDLE

Rated speed rpm : 300  
rack travel mm : -6.00  
Tolerance mm : + 0.20  
Del. quantity cm3/1000 strokes : 29.0  
Tolerance cm3/1000 strokes : + 2.0  
Check tolerance cm3/1000S. : + 5.0  
Spreed Tolerance cm3/1000 strokes : 8.0  
Check tolerance cm3/1000S. : 12.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.95  
Test oil : ISO 4113  
Combination No. : 0 402 048 705  
Injection pump  
Pump designation : PES8P120A32ORS3199  
EP type number : 0 412 028 705  
Governor  
Governor design. : RQV275...1050PA665  
Governor no. : 0 421 813 370

Cust. part No. :

Customer-spec. information  
Customer : RVI  
Motor : MIVR083530  
Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 1 688 901 019  
Opening pressure bar : 208.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
Prestroke mm : 3.55  
Tolerance mm : +- 0.05  
Check tolerance mm : +- 0.10  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
Firing order : 1- 8- 4- 2- 7  
                  : - 3- 6- 5  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : +- 0.30  
Check tolerance °NW : +- 0.50  
Start of delivery mark  
°NW after s.o.d. : 13.00  
Tolerance : +- 0.50  
Check tolerance °NW : +- 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 11.45  
Tolerance mm : +- 0.05  
Del. quantity cm<sup>3</sup>/1000 strokes : 203.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

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Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

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Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

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Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.50  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 0.89

Tolerance mm : ± 0.20

Rated speed rpm : 1135  
guide sleeve  
travel mm : 8.32

Tolerance mm : ± 0.15

Rated speed rpm : 781  
guide sleeve  
travel mm : 5.68

Tolerance mm : ± 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.60

Tolerance mm : ± 0.25

Rated speed rpm : 1430  
guide sleeve  
travel mm : 11.50

A05

Tolerance mm : ± 0.50

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GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 10.45

Tolerance mm : ± 1.30

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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 203.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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CONTROL LEVER

control lever  
position degree : 65.0

tolerance degree : ± 4.0

control lever  
position degree : 300.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1120

Tolerance 1/min : ± 5

rack travel mm : -7.45

Rated speed rpm : 1225

Tolerance 1/min : ± 15

rack travel mm : -10.95

Tolerance mm : ± 0.50

Rated speed rpm : 1350

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LOW IDLE

control lever  
position degree : 245.0  
tolerance degree : ± 4.0

control lever  
position degree : 10.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : -7.50  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm max. : < -5.80

Rated speed rpm : 343

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 650

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 700

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -2.60  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 360  
rack travel mm : -1.90  
Tolerance mm : ± 0.10

Pressure hPa : 420  
rack travel mm : -0.75  
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 195

A06

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1120  
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 275  
rack travel mm : -7.50  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.11.95  
Test oil : ISO 4113

Combination No. : 0 402 076 758

Injection pump  
Pump designation : PES6P120A720RS3322  
EP type number : 0 412 026 764

Governor  
Governor design. : RSV650...1250P8A566  
Governor no. : 0 421 833 415

Cust. part No. :

Customer-spec. information  
Customer : FNH-GEOTECH  
Power KW : 164.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

A08

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 3.60  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.05  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0



Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.40  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 1.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree : + 4.0

RATED SPEED

Rated speed rpm : 1330

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1293  
rack travel mm : 9.05

Rated speed rpm : 1325  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1500

Rated speed rpm : 1294  
rack travel mm : 9.05

Rated speed rpm : 1326  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1295  
rack travel mm : 9.05

Rated speed rpm : 1327  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1296  
rack travel mm : 9.05

Rated speed rpm : 1328  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1297  
rack travel mm : 9.05

Rated speed rpm : 1329  
Tolerance 1/min : + 5

rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1298  
rack travel mm : 9.05  
Rated speed rpm : 1330  
Tolerance 1/min : +- 5  
rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm : +- 0.55

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LOW IDLE

control lever  
position degree : 85.0  
tolerance degree : +- 4.0  
Setting point w/out bumper spring

Rated speed rpm : 650  
rack travel mm : 3.90

Testing:

Rated speed rpm : 650  
rack travel mm : 4.40  
Tolerance mm : +- 0.10  
rack travel mm : 2.00  
Rated speed rpm : 770  
Tolerance 1/min : +- 50

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TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.05  
Tolerance mm : +- 0.05  
Rated speed rpm : 900  
rack travel mm : 10.60  
Tolerance mm : +- 0.10  
Rated speed rpm : 1160  
rack travel mm : 10.35  
Tolerance mm : +- 0.10  
Rated speed rpm : 700  
rack travel mm : 10.60  
Tolerance mm : +- 0.10

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ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 10.60  
Tolerance mm : +- 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 7.60  
Tolerance mm : +- 0.10  
Rated speed rpm : 500  
Pressure hPa : 560  
rack travel mm : 9.80  
Tolerance mm : +- 0.05

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START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80

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FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

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LOW IDLE

Rated speed rpm : 650  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.11.95  
Test oil : ISO 4113

Combination No. : 0 402 648 795

Injection pump  
Pump designation : PE8P120A320LS7873  
EP type number : 0 412 628 880

Governor  
Governor design. : RQV300...1050PA1258K  
Governor no. : 0 421 815 490

Cust. part No. : 04223330KY0165-17

Customer-spec. information  
Customer : KHD  
Motor : BF8M1015/C  
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 115  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
                  : - 5- 4- 3

Phasing : 0-45-90-135-180  
          : -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.70  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 360.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

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Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

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Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

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Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.80  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.60  
Tolerance mm : +- 0.20

Rated speed rpm : 1097  
guide sleeve  
travel mm : 10.07  
Tolerance mm : +- 0.15

Rated speed rpm : 796  
guide sleeve  
travel mm : 6.87  
Tolerance mm : +- 0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 4.02  
Tolerance mm : +- 0.25

Rated speed rpm : 1340

guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1175

Rack travel in mm : 13.70  
Tolerance mm : +- 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 360.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.70  
Rated speed rpm : 1085  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm max. : > 6.30

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.70  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 14.00  
Tolerance mm : ± 0.25

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm : ± 0.25

Rated speed rpm : 450  
rack travel mm : 11.40  
Tolerance mm : ± 0.25

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050  
Pressure hPa : 1000  
rack travel mm : 14.70  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1050  
rack travel mm : 8.90  
Tolerance mm : ± 0.20

Rated speed rpm : 1050

Pressure hPa : 500  
rack travel mm : 11.95  
Tolerance mm : ± 0.10

Pressure hPa : 800  
rack travel mm : 14.10  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 13.70  
Rated speed rpm : 1085  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.90  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.95  
Test oil : ISO 4113  
Combination No. : 0 402 744 804  
Injection pump  
Pump designation : PES4P120A32ORS7402  
EP type number : 0 412 724 804  
Governor  
Governor design. : RQV275...1200PA1257K  
Governor no. : 0 421 815 494

Cust. part No. : CCEP 5154 66-238

Customer-spec. information  
Customer : RVI  
Motor : MIDR 04-02-26 A4  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 071  
Inlet press. bar : 2.5  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -8.40  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.52  
Tolerance mm : ± 0.20

Rated speed rpm : 1260  
guide sleeve  
travel mm : 10.32  
Tolerance mm : ± 0.15

Rated speed rpm : 938  
guide sleeve  
travel mm : 6.86  
Tolerance mm : ± 0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.92  
Tolerance mm : ± 0.25

Rated speed rpm : 1650  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 12.10  
Tolerance mm : ± 1.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 298.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1260  
Tolerance 1/min : ± 5

rack travel mm : -9.10  
Rated speed rpm : 1410  
Tolerance 1/min : ± 15

rack travel mm : -12.60  
Tolerance mm : ± 0.50  
Rated speed rpm : 1500

---

LOW IDLE

control lever  
position degree : 252.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 325  
rack travel mm : -8.40  
Tolerance mm : ± 0.10

Rated speed rpm : 225  
CRT mm min. : < 6.90  
Rated speed rpm : 390

---

TORQUE CONTROL

Rated speed rpm : 1200  
Rated speed rpm : 850  
rack travel mm : -1.05  
Tolerance mm : ± 0.10  
Rated speed rpm : 700  
rack travel mm : -1.85  
Tolerance mm : ± 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1200  
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1200  
rack travel mm : -2.70  
Tolerance mm : ± 0.20

Rated speed rpm : 1200

Pressure hPa : 200  
rack travel mm : -2.00  
Tolerance mm : ± 0.20

Pressure hPa : 440  
rack travel mm : -0.70  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 130  
Rated speed rpm : < 275

Check  
speed 1/min : > 110  
Check  
speed 1/min : < 285

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1260  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 325  
rack travel mm : -8.40  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.11.95  
Test oil : ISO 4113  
Combination No. : 0 402 746 603

Injection pump  
Pump designation : PES6P120A320RS7359  
EP type number : 0 412 726 925

Governor  
Governor design. : RQ300/1050PA999-7  
Governor no. : 0 421 801 799

Cust. part No. : CCEP 5153 66-224

Customer-spec. information  
Customer : RVI  
Motor : MIHRO62045 A41  
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : + 0.1

Test nozzle holder assembly : 1 688 901 101

Opening pressure bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.70  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10

Rack travel in mm : 20.25  
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check tolerance °NW : + 0.50

Start of delivery mark  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30  
Tolerance mm : + 0.05  
Tolerance mm : + 0.05

Del. quantity cm<sup>3</sup>/1000 strokes : 191.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  
 Rated speed rpm : 275  
 Rack travel in mm : -6.10  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 34.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
 guide sleeve  
 travel mm : 1.75  
 Tolerance mm : + 0.20  
  
 Rated speed rpm : 1145  
 guide sleeve  
 travel mm : 6.55  
 Tolerance mm : + 0.15  
  
 Rated speed rpm : 1050  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : + 0.10  
  
 Rated speed rpm : 594  
 guide sleeve  
 travel mm : 5.11  
 Tolerance mm : + 0.10  
  
 Rated speed rpm : 720  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : + 0.10

Rated speed rpm : 1380  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 20.00  
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 191.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 276.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00  
 Rated speed rpm : 1138  
 Tolerance 1/min : + 5  
  
 rack travel mm : -8.30  
 Rated speed rpm : 1265  
 Tolerance 1/min : + 15  
  
 rack travel mm : -11.80  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1375

LOW IDLE

control lever  
position degree : 255.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : -6.10  
Tolerance mm : ± 0.10

rack travel mm : -10.30  
Rated speed rpm : 520  
Tolerance 1/min : ± 20

Rated speed rpm : 175  
CRT mm min. : > -4.20

---

TORQUE CONTROL

Rated speed rpm : 600  
Tolerance mm : ± 0.05

Rated speed rpm : 1050  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -1.10  
Tolerance mm : ± 0.20

Rated speed rpm : 500  
Pressure hPa : 140  
rack travel mm : -0.65  
Tolerance mm : ± 0.15

Pressure hPa : 200  
rack travel mm : -0.25  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 195

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1138  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : -6.10  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.11.95  
Test oil : ISO 4113

Combination No. : 0 402 746 953

Injection pump  
Pump designation : PES6P120A32ORS7294  
EP type number : 0 412 726 895

Governor  
Governor design. : RQV275...1000PA1001  
: -1  
Governor no. : 0 421 813 936

Cust. part No. : CCEP-5135 66-213

Customer-spec. information

Customer : RVI  
Motor : MIDR 063540 J/3  
Power kW : 306.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.70

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05



<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 312.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: -8.60
Tolerance mm	: ± 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 31.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.29
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1086
guide sleeve	
travel mm	: 8.46
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 773
guide sleeve	
travel mm	: 6.09
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 343
guide sleeve	
travel mm	: 2.33
Tolerance mm	: ± 0.20

Rated speed rpm	: 393
guide sleeve	
travel mm	: 2.99
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 490
guide sleeve	
travel mm	: 3.81
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1370
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1185
<hr/>	
Rack travel in mm	: 12.60
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 312.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 302.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1080
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: -9.70
Rated speed rpm	: 1220
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: -13.25

Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 246.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : -8.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm max. :  $<$  -7.20

Rated speed rpm : 370

---

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : -5.50  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -5.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 240  
rack travel mm : -3.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600

rack travel mm : -0.95  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  225

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  245

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1080  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : -8.60  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.11.95  
Test oil : ISO 4113  
Combination No. : 0 402 996 307  
Injection pump  
Pump designation : PES6P120A720RS8512  
                  : -2  
EP type number : 0 412 926 212  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 024  
  
Cust. part No. : CCEP 5156 66-242

Customer-spec. information  
Customer : RVI  
Motor : 062465A42B42C42

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
  
Overflow valve : 2 417 413 084  
  
Inlet press. bar : 3.0  
Tolerance bar : +- 0.1  
  
Test nozzle holde  
assembly : 1 688 901 103  
  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5  
  
Test lines : 1 680 750 008  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.20

Prestroke mm : 4.20  
Tolerance mm : +- 0.05  
Tolerance mm : +- 0.05

Check  
tolerance mm : +- 0.10  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 12.00

Rack travel in mm : 12.00  
Tolerance mm : +- 0.20  
Tolerance mm : +- 0.20

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300

Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900  
Uact V : 3.050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625  
Uact V : 3.260  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 392.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 12.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 16.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 18.0

TEST POINT L1

Rated speed rpm : 325  
Uact V : 1.310

Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.070  
Del. quantity  
cm3/1000 strokes : 33.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : +- 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.700  
Del. quantity  
cm3/1000 strokes : 195.0  
Tolerance  
cm3/1000 strokes : +- 19.0  
Check tolerance  
cm3/1000S. : +- 22.0  
Spreed  
Tolerance  
cm3/1000 strokes : 40.0  
Check tolerance  
cm3/1000S. : 50.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.11.95  
Test oil : ISO 4113  
Combination No. : 0 403 246 054  
Injection pump  
Pump designation : PES6MW100/720RS1526  
EP type number : 0 413 206 025  
Governor  
Governor design. : RQV300...1300MW154  
Governor no. : 0 420 083 341

Cust. part No. : 0260748702

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power kW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder assembly : 1 688 901 101  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
Rack travel in mm : 20.00  
Tolerance mm : ± 1.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 11.90  
Tolerance mm : ± 0.05  
Del. quantity cm3/1000 strokes : 98.0  
Tolerance cm3/1000 strokes : ± 1.0  
Check tolerance cm3/1000s. : ± 3.0  
Speed Tolerance cm3/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 4.00  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.01  
Tolerance mm : ± 0.20

Rated speed rpm : 1352  
guide sleeve  
travel mm : 6.10  
Tolerance mm : ± 0.15

Rated speed rpm : 1140  
guide sleeve  
travel mm : 4.84  
Tolerance mm : ± 0.25

Rated speed rpm : 740  
guide sleeve  
travel mm : 3.23  
Tolerance mm : ± 0.25

Rated speed rpm : 1800  
guide sleeve  
travel mm : 12.00  
Tolerance mm : ± 0.25

Rated speed rpm : 1910  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1445

Rack travel in mm : 10.00  
Tolerance mm : ± 2.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure

hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.90  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1500  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1600

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm : ± 0.10



Rated speed rpm : 200  
CRT mm min. : > 4.50

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.90  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 11.90  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 11.90  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : + 0.10

Rated speed rpm : 500  
Pressure hPa : 350  
rack travel mm : 1.30  
Tolerance mm : + 0.10

Pressure hPa : 250  
rack travel mm : 0.65  
Tolerance mm : + 0.10

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check speed 1/min : > 80  
Check speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000  
Rated speed rpm : 750

Del. quantity cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure hPa : -  
Rated speed rpm : 500  
Del. quantity cm<sup>3</sup>/1000 strokes : 61.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance cm<sup>3</sup>/1000S. : + 3.0

---

BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance cm<sup>3</sup>/1000S. : + 8.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.00  
Tolerance mm : + 0.20  
Del. quantity cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance cm<sup>3</sup>/1000S. : + 4.5  
Speed  
Tolerance cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.05.95  
Test oil : ISO 4113

Combination No. : 0 402 646 602

Injection pump  
Pump designation : PE6P120A72DRS7264  
EP type number : G 412 626 874

Governor  
Governor design. : RQ750PA758-14  
Governor no. : 0 421 801 659

Cust. part No. : 1337552

---

Customer-spec. information  
Customer : SCANIA  
Motor : D 11

---

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper  
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 14.15  
Tolerance mm : ± 0.05

---

Del. quantity cm<sup>3</sup>/1000 strokes : 276.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Rack travel in mm : 5.50  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 30.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 276.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
 position degree : 29.0  
 tolerance degree : + 4.0

control lever  
 position degree : 90.0  
 tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750  
 rack travel mm : 13.10

Rated speed rpm : 794  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 850

Rated speed rpm : 751  
 rack travel mm : 13.10

Rated speed rpm : 795  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 850

Rated speed rpm : 752  
 rack travel mm : 13.10

Rated speed rpm : 796  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 850

Rated speed rpm : 753  
 rack travel mm : 13.10

Rated speed rpm : 797  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 850

Rated speed rpm : 754  
 rack travel mm : 13.10

Rated speed rpm : 798  
 Tolerance 1/min : + 4  
 rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : + 0.50  
Rated speed rpm : 850  
  
Rated speed rpm : 755  
rack travel mm : 13.10  
  
Rated speed rpm : 799  
Tolerance 1/min : + 4  
rack travel mm : 4.00  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 850

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.15  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.15  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.00  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 210  
rack travel mm : 11.90  
Tolerance mm : + 0.20

Pressure hPa : 440  
rack travel mm : 13.45  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.10.95  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 665  
  
Injection pump  
Pump designation : PE6P130A72ORS7354  
EP type number : 0 412 636 835  
  
Governor  
Governor design. : RQV300...950PA1002  
: -3K  
Governor no. : 0 421 815 491  
  
Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8210.42K.3000

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 076  
  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 075  
  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 12.00  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
  
Start of delivery mark  
  
Check  
tolerance °NW : ± 0.40  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950  
  
Rack travel in mm : 12.05  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 244.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 4.80
Tolerance mm	: ± 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 22.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.64
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1025
guide sleeve	
travel mm	: 9.00
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 764
guide sleeve	
travel mm	: 6.22
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 500
guide sleeve	
travel mm	: 3.78
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1330
guide sleeve	
travel mm	: 13.50
Tolerance mm	: ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 1200
<hr/>	
Rack travel in mm	: 11.00
Tolerance mm	: ± 2.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure	
hPa	: 900
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 244.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

---

CONTROL LEVER

control lever	
position degree	: 114.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.00
Rated speed rpm	: 1015
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1015
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1250

---

LOW IDLE

control lever	
position degree	: 71.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm min. : > 6.30

Rated speed rpm : 355

---

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 12.05  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm : ± 0.10

Rated speed rpm : 550  
rack travel mm : 11.50  
Tolerance mm : ± 0.10

Rated speed rpm : 300  
rack travel mm : 10.90  
Tolerance mm : ± 0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 950  
Pressure hPa : 900  
rack travel mm : 12.05  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 950  
rack travel mm : 8.50  
Tolerance mm : ± 0.20

Rated speed rpm : 950

Pressure hPa : 290  
rack travel mm : 9.35  
Tolerance mm : ± 0.20

Pressure hPa : 500  
rack travel mm : 11.10  
Tolerance mm : ± 0.05

---

#### START CUT-OUT

B12

Rated speed rpm : > 180  
Rated speed rpm : < 220

Check  
speed 1/min : > 200  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 174.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1015  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : ± 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 300



rack travel mm : 4.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.12.95  
Test oil : ISO 4113

Combination No. : 0 402 648 602

Injection pump  
Pump designation : PE8P110A320RS7398  
EP type number : 0 412 618 800

Governor  
Governor design. : RQV300...900PA1252K  
Governor no. : 0 421 815 484

Cust. part No. :

Customer-spec. information  
Customer : TATRA  
Motor : T3B-928.60  
Power KW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 1.00

Firing order : 1- 8- 5- 4- 7  
                  : - 2- 3- 6

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 191.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

<hr/>	
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
Rated speed rpm	: 250
Rack travel in mm :	5.20
Tolerance mm :	+ 0.30
Del. quantity	
cm <sup>3</sup> /1000 strokes :	17.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 6.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.63
Tolerance mm	: + 0.20
<hr/>	
Rated speed rpm	: 958
guide sleeve	
travel mm	: 8.79
Tolerance mm	: + 0.15
<hr/>	
Rated speed rpm	: 777
guide sleeve	
travel mm	: 6.70
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 520
guide sleeve	
travel mm	: 3.73
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1260
guide sleeve	
travel mm	: 13.50
Tolerance mm	: + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 1115
-----------------	--------

Rack travel in mm :	13.00
Tolerance mm	: + 1.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm <sup>3</sup> /1000 strokes :	191.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

---

CONTROL LEVER

control lever	
position degree	: 65.0
tolerance degree	: + 4.0

control lever	
position degree	: 119.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 13.00
Rated speed rpm	: 945
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1065
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1150

---

LOW IDLE

control lever	
position degree	: 70.0
tolerance degree	: + 4.0

control lever	
position degree	: 16.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 5.20  
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 6.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 14.00  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.10  
Tolerance mm : ± 0.10

Rated speed rpm : 300  
rack travel mm : 12.60  
Tolerance mm : ± 0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 900  
Pressure hPa : 1500  
rack travel mm : 14.00  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 900  
rack travel mm : 9.05  
Tolerance mm : ± 0.20

Rated speed rpm : 900

Pressure hPa : 375  
rack travel mm : 10.15  
Tolerance mm : ± 0.15

Pressure hPa : 750  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 170

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 945  
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 5.20

Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.12.95  
Test oil : ISO 4113  
  
Combination No. : 0 402 848 300  
  
Injection pump  
Pump designation : PE8P120A520LS8518  
EP type number : 0 412 828 201  
  
Governor  
Governor design. : RQV300...1150PA1039  
                  : -3K  
Governor no. : 0 421 815 980  
  
Cust. part No. : 51.11103-7492

Customer-spec. information  
Customer : MAN  
Motor : D 2848 LE 403  
Power kW : 588.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
  
Overflow valve : 1 417 413 078  
  
Inlet press. bar : 2.5  
Tolerance bar : +- 0.1  
  
Overflow quantity  
min. l/h : 170  
Tolerance l/h : +- 15.0  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
  
Prestroke mm : 5.65  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
  
Rack travel in mm : 13.00  
Tolerance mm : +- 0.50  
  
Firing order : 8-7-2-6-3  
              : -5-4-1  
  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50  
  
Start of delivery blocking  
Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150  
  
Rack travel in mm : 13.70  
Tolerance mm : +- 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 337.0

<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 49.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 8.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.61
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1206
guide sleeve	
travel mm	: 9.84
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 797
guide sleeve	
travel mm	: 6.36
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 460
guide sleeve	
travel mm	: 3.78
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1500
guide sleeve	
travel mm	: 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1327
<hr/>	
Rack travel in mm	: 12.70
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: 2000
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 337.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

CONTROL LEVER

control lever	
position degree	: 118.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.70
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1325
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1400

LOW IDLE

control lever	
position degree	: 71.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 6.90

Rated speed rpm : 340

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.70  
Tolerance mm : ± 0.05

Rated speed rpm : 1000  
rack travel mm : 13.65  
Tolerance mm : ± 0.10

Rated speed rpm : 850  
rack travel mm : 12.60  
Tolerance mm : ± 0.10

Rated speed rpm : 650  
rack travel mm : 11.40  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1150  
Pressure hPa : 2000  
rack travel mm : 13.70  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 7.70  
Tolerance mm : ± 0.15

Rated speed rpm : 1150

Pressure hPa : 220  
rack travel mm : 8.05  
Tolerance mm : ± 0.05

Pressure hPa : 1050  
rack travel mm : 11.90  
Tolerance mm : ± 0.15

---

#### START CUT-OUT

Rated speed rpm : > 170  
Rated speed rpm : < 230

Check  
speed 1/min : > 150  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 321.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.70



Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 04.12.95
Test oil : ISO 4113
Combination No. : 0 403 234 005
Injection pump Pump designation : PES4MW100/320/3RS152
EP type number : 0 413 204 015
Governor Governor design. : RQV300...1100MW141K
Governor no. : 0 420 083 983
Cust. part No. :

Customer-spec. information
Customer : PERKINS
Motor : Phaser 110 TI
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : +- 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder assembly : 1 688 901 101
Opening pressure bar : 208.5
Tolerance bar : +- 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : +- 1.0
Prestroke mm : 4.80
Tolerance mm : +- 0.05
Check tolerance mm : +- 0.10
Rack travel in mm : 13.00
Tolerance mm : +- 1.00
Firing order : 1- 3- 4- 2
Phasing : 0-90-180-270
Tolerance : +- 0.50
Check tolerance °NW : +- 0.75

Start of delivery blocking

°NW before FB : 48.00
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 14.05
Tolerance mm : +- 0.05
Del. quantity cm3/1000 strokes : 134.0
Tolerance cm3/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 5.50  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.61  
Tolerance mm : + 0.20

Rated speed rpm : 1355  
guide sleeve  
travel mm : 10.23  
Tolerance mm : + 0.15

Rated speed rpm : 881  
guide sleeve  
travel mm : 6.46  
Tolerance mm : + 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.91  
Tolerance mm : + 0.25

Rated speed rpm : 1630  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1475

Rack travel in mm : 10.00  
Tolerance mm : + 2.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.10  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1600

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 325  
rack travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : > 7.50

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 14.05  
Tolerance mm : +- 0.05

Rated speed rpm : 800  
rack travel mm : 12.90  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
rack travel mm : 11.10  
Tolerance mm : +- 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1300  
Pressure hPa : 1000  
rack travel mm : 14.05  
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1300  
rack travel mm : 8.80  
Tolerance mm : +- 0.10

Rated speed rpm : 1300

Pressure hPa : 425  
rack travel mm : 12.90  
Tolerance mm : +- 0.15

Pressure hPa : 250  
rack travel mm : 9.90  
Tolerance mm : +- 0.05

---

START CUT-OUT

Rated speed rpm : > 220  
Rated speed rpm : < 230

Check speed 1/min : > 170  
Check speed 1/min : < 250

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

BREAKAWAY

Rack travel in mm : 13.10  
Rated speed rpm : 1345  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : +- 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 10.0

---

LOW IDLE

Rated speed rpm : 325  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.12.95  
Test oil : ISO 4113  
Combination No. : 0 403 236 005  
Injection pump  
Pump designation : PES6MW100/320/3RS151  
: 8-1  
EP type number : 0 413 206 018  
Governor  
Governor design. : RQV325...1300MW133  
: -1K  
Governor no. : 0 420 083 984  
Cust. part No. :

---

Customer-spec. information  
Customer : PERKINS  
Motor : 180 TI  
Power KW : 134.0

---

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
Prestroke mm : 5.00  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 13.00  
Tolerance mm : + 1.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Start of delivery blocking  
°NW before FB : 46.50  
Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 14.65  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.0

---

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 5.80  
 Tolerance mm : +- 0.20

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 23.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.5

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
 guide sleeve  
 travel mm : 1.61  
 Tolerance mm : +- 0.20

Rated speed rpm : 1355  
 guide sleeve  
 travel mm : 10.23  
 Tolerance mm : +- 0.15

Rated speed rpm : 881  
 guide sleeve  
 travel mm : 6.46  
 Tolerance mm : +- 0.25

Rated speed rpm : 500  
 guide sleeve  
 travel mm : 3.91  
 Tolerance mm : +- 0.25

Rated speed rpm : 1630  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1475  
 Rack travel in mm : 10.00  
 Tolerance mm : +- 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 141.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.0

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

CONTROL LEVER

control lever  
 position degree : 120.0  
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.60  
 Rated speed rpm : 1345  
 Tolerance 1/min : +- 5

rack travel mm : 4.00  
 Rated speed rpm : 1480  
 Tolerance 1/min : +- 15

rack travel mm : 0.50  
 Tolerance mm : +- 0.50  
 Rated speed rpm : 1600

LOW IDLE

control lever  
 position degree : 75.0  
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 325  
rack travel mm : 5.80  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : > 8.00

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 14.65  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 13.35  
Tolerance mm : + 0.10

Rated speed rpm : 500  
rack travel mm : 11.50  
Tolerance mm : + 0.10

Rated speed rpm : 1000  
rack travel mm : 14.40  
Tolerance mm : + 0.15

Rated speed rpm : 700  
rack travel mm : 12.90  
Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1300  
Pressure hPa : 900  
rack travel mm : 14.65  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1300  
rack travel mm : 9.20  
Tolerance mm : + 0.10

Rated speed rpm : 1300

Pressure hPa : 400  
rack travel mm : 13.25  
Tolerance mm : + 0.15

Pressure hPa : 250  
rack travel mm : 10.30  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 220  
Rated speed rpm : < 240

Check  
speed 1/min : > 170  
Check  
speed 1/min : < 270

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 900  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

#### BREAKAWAY

Rack travel in mm : 13.60  
Rated speed rpm : 1345  
Tolerance 1/min : + 5



---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

LOW IDLE

Rated speed rpm : 325  
rack travel mm : 5.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.12.95  
 Test oil : ISO 4113  
 Combination No. : 0 403 276 014  
 Injection pump  
 Pump designation : PES6MW100/720RS1527  
 EP type number : 0 413 206 026  
 Governor  
 Governor design. : RSV350...1300MWOA391  
 Governor no. : 0 420 085 277  
 Cust. part No. : 0260749102

Customer-spec. information  
 Customer : MB-NFZ  
 Motor : OM366LA  
 Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
 Test oil inlet  
 temp. °C : 40  
 Tolerance °C : +- 2.0  
 Overflow valve : 1 419 992 198  
 Inlet press. bar : 1.5  
 Test nozzle holde  
 assembly : 1 688 901 101  
 Opening pressure  
 bar : 208.5  
 Tolerance bar : +- 1.5  
 Test lines : 1 680 750 089  
 Outside diameter : 8.0

x inside diameter : 3.0  
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
 Tolerance bar : +- 1.0  
 Prestroke mm : 4.55  
 Tolerance mm : +- 0.05  
 Check  
 tolerance mm : +- 0.10  
 Rack travel in mm : 20.00  
 Tolerance mm : +- 1.00  
 Firing order : 1- 5- 3- 6- 2-  
 : 4  
 Phasing : 0-60-120-180-240  
 : -300  
 Tolerance : +- 0.50  
 Check  
 tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1300  
 Rack travel in mm : 14.40  
 Tolerance mm : +- 0.05  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 133.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5  
 Rated speed rpm : 350  
 Rack travel in mm : 3.80  
 Tolerance mm : +- 0.30  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : +- 0.35  
 governor spring  
 pre-tension  
 click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 133.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.5

CONTROL LEVER

control lever  
 position degree : 106.0  
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 1.00  
 Tolerance mm : +- 0.70  
 Rated speed rpm : 1600  
 rack travel mm : 4.00  
 Rated speed rpm : 1465  
 rack travel mm : 13.40  
 Rated speed rpm : 1345  
 Tolerance 1/min : +- 5

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1340  
 rack travel mm : 13.40  
 Rated speed rpm : 1444  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1341  
 rack travel mm : 13.40

Rated speed rpm : 1445  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1342  
 rack travel mm : 13.40

Rated speed rpm : 1446  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1343  
 rack travel mm : 13.40

Rated speed rpm : 1447  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1344  
 rack travel mm : 13.40

Rated speed rpm : 1448  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1345  
 rack travel mm : 13.40

Rated speed rpm : 1449  
 Tolerance 1/min : +- 4

rack travel mm : 4.00

---

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 3.80

Testing:

rack travel mm : 2.00  
Rated speed rpm : 450  
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 14.40  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 14.40  
Tolerance mm : +- 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.40  
Tolerance mm : +- 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : +- 0.10

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 5.10  
Tolerance mm : +- 0.10

Pressure hPa : 450  
rack travel mm : 1.90  
Tolerance mm : +- 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 46.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 3.80  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.11.95  
Test oil : ISO 4113  
Combination No. : 0 403 436 114  
Injection pump  
Pump designation : PES6MW100/320/3RS119  
: 4-1  
EP type number : 0 413 406 221  
Governor  
Governor design. : RQV300...1300MW108K  
Governor no. : 0 420 083 998  
Cust. part No. :

Customer-spec. information  
Customer : PERKINS  
Motor : 180 TI  
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test Lines : 1 680 750 008  
Outside diameter : 6.0

C06

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.35  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 13.00  
Tolerance mm : ± 1.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
°NW before FB : 46.50  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 14.15  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.70

Tolerance mm : +- 0.20

Rated speed rpm : 1355  
guide sleeve  
travel mm : 10.13

Tolerance mm : +- 0.15

Rated speed rpm : 892  
guide sleeve  
travel mm : 6.43

Tolerance mm : +- 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.44

Tolerance mm : +- 0.25

Rated speed rpm : 1640  
guide sleeve  
travel mm : 13.50

Tolerance mm : +- 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 10.00  
Tolerance mm : +- 2.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

CONTROL LEVER

control lever  
position degree : 120.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.15  
Rated speed rpm : 1345

Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1485

Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50

Rated speed rpm : 1500

---

LOW IDLE

control lever  
position degree : 76.0

tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm min. : > 8.00

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 14.15  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 13.15  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
rack travel mm : 11.60  
Tolerance mm : ± 0.10

Rated speed rpm : 1000  
rack travel mm : 13.60  
Tolerance mm : ± 0.15

Rated speed rpm : 700  
rack travel mm : 12.75  
Tolerance mm : ± 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1300  
Pressure hPa : 900  
rack travel mm : 14.15  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1300  
rack travel mm : 9.30  
Tolerance mm : ± 0.10

Rated speed rpm : 1300

Pressure hPa : 220  
rack travel mm : 11.20  
Tolerance mm : ± 0.15

Pressure hPa : 180  
rack travel mm : 10.45  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 190  
Rated speed rpm : < 240

Check  
speed 1/min : > 170  
Check  
speed 1/min : < 250

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 900  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 62.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

BREAKAWAY

Rack travel in mm : 13.15  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5



---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.11.95  
Test oil : ISO 4113

Combination No. : 0 403 444 145

Injection pump  
Pump designation : PES4MW100/320RS1199  
EP type number : 0 413 404 112

Governor  
Governor design. : RQV300...1100MW131K  
Governor no. : 0 420 083 987

Cust. part No. :

Customer-spec. information  
Customer : PERKINS  
Motor : VME  
Power KW : 74.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 100

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

C10

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.35  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW before FB : 48.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
<hr/>	
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.0
Rated speed rpm	: 300
Rack travel in mm	: 6.20
Tolerance mm	: + 0.20
Del. quantity cm <sup>3</sup> /1000 strokes	: 18.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 2.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.5
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve travel mm	: 1.70
Tolerance mm	: + 0.20
Rated speed rpm	: 1156
guide sleeve travel mm	: 10.48
Tolerance mm	: + 0.15
Rated speed rpm	: 738
guide sleeve travel mm	: 5.47
Tolerance mm	: + 0.25
Rated speed rpm	: 410
guide sleeve travel mm	: 3.05
Tolerance mm	: + 0.25
Rated speed rpm	: 1340
guide sleeve travel mm	: 13.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1220
Rack travel in mm	: 10.00
Tolerance mm	: + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 900
Del. quantity cm <sup>3</sup> /1000 strokes	: 130.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 122.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.90
Rated speed rpm	: 1145
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1225
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever position degree	: 76.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : ± 0.10  
  
Rated speed rpm : 200  
  
CRT mm min. : > 7.50

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.95  
Tolerance mm : ± 0.05  
  
Rated speed rpm : 800  
rack travel mm : 12.50  
Tolerance mm : ± 0.10  
  
Rated speed rpm : 500  
rack travel mm : 11.30  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 900  
rack travel mm : 12.95  
Tolerance mm : ± 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 9.30  
Tolerance mm : ± 0.10

Rated speed rpm : 1100

Pressure hPa : 225  
rack travel mm : 11.15  
Tolerance mm : ± 0.15

Pressure hPa : 150  
rack travel mm : 9.75  
Tolerance mm : ± 0.05

---

#### START CUT-OUT

Rated speed rpm : > 190  
Rated speed rpm : < 230  
  
Check  
speed 1/min : > 170

Check  
speed 1/min : < 250

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : 900  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

#### BREAKAWAY

Rack travel in mm : 11.90  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : ± 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.12.95  
 Test oil : ISO 4113  
 Combination No. : 0 403 446 333  
 Injection pump  
 Pump designation : PES6MW100/72ORS1131  
 : -1  
 EP type number : 0 413 406 165  
 Governor  
 Governor design. : RQV300...1300MW151  
 Governor no. : 0 420 083 333  
 Cust. part No. : 0260747102

Customer-spec. information  
 Customer : MB-NFZ  
 Motor : OM 366 LA  
 Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
 Test oil inlet  
 temp. °C : 40  
 Tolerance °C : ± 2.0  
 Overflow valve : 1 419 992 198  
 Inlet press. bar : 1.5  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening pressure  
 bar : 173.5  
 Tolerance bar : ± 1.5  
 Test lines : 1 680 750 089  
 Outside diameter : 8.0

x inside diameter : 3.0  
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
 Tolerance bar : ± 1.0  
 Prestroke mm : 3.65  
 Tolerance mm : ± 0.05  
 Check  
 tolerance mm : ± 0.10  
 Rack travel in mm : 10.50  
 Tolerance mm : ± 1.50  
 Firing order : 1- 5- 3- 6- 2-  
 : 4  
 Phasing : 0-60-120-180-240  
 : -300  
 Tolerance : ± 0.50  
 Check  
 tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300  
 Rack travel in mm : 13.15  
 Tolerance mm : ± 0.05  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 99.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 Rated speed rpm : 300  
 Rack travel in mm : 6.20  
 Tolerance mm : ± 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.37  
 Tolerance mm : ± 0.20  
 Rated speed rpm : 1355  
 guide sleeve  
 travel mm : 8.65  
 Tolerance mm : ± 0.15  
 Rated speed rpm : 885  
 guide sleeve  
 travel mm : 5.01  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 490  
 guide sleeve  
 travel mm : 2.86  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 1610  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1440  
 Rack travel in mm : 10.00  
 Tolerance mm : ± 2.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 99.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
 position degree : 113.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.10  
 Rated speed rpm : 1345  
 Tolerance 1/min : ± 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1460  
 Tolerance 1/min : ± 15  
 rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1550

---

LOW IDLE

control lever  
 position degree : 69.0  
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 6.20  
 Tolerance mm : ± 0.10  
 Rated speed rpm : 200  
 CRT mm min. : > 7.70

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.15  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.15  
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.55  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 350  
rack travel mm : 12.25  
Tolerance mm : ± 0.15

Pressure hPa : 200  
rack travel mm : 11.25  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check speed 1/min : > 80  
Check speed 1/min : < 250

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000  
Rated speed rpm : 600  
Del. quantity cm<sup>3</sup>/1000 strokes : 86.5

Tolerance cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure hPa : -  
Rated speed rpm : 500  
Del. quantity cm<sup>3</sup>/1000 strokes : 42.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 3.0

---

BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : ± 0.20  
Del. quantity cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance cm<sup>3</sup>/1000S. : 5.0



---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.12.95  
Test oil : ISO 4113  
Combination No. : 0 403 446 334  
Injection pump  
Pump designation : PES6MW100/72ORS1243  
EP type number : 0 413 406 243  
Governor  
Governor design. : RQV325...1350MW153K  
Governor no. : 0 420 083 982

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT  
Motor : 8060.45.7280  
Power KW : 176.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 457 413 010  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test Lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 12.00  
Tolerance mm : ± 1.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 12.60  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 118.5  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 3.0  
Speed  
Tolerance  
cm3/1000 strokes : 4.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0  
 Rated speed rpm : 325  
 Rack travel in mm : 5.60  
 Tolerance mm : ± 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 20.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
 guide sleeve  
 travel mm : 1.83  
 Tolerance mm : ± 0.20  
 Rated speed rpm : 1442  
 guide sleeve  
 travel mm : 10.60  
 Tolerance mm : ± 0.15  
 Rated speed rpm : 902  
 guide sleeve  
 travel mm : 5.88  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 470  
 guide sleeve  
 travel mm : 3.47  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 1670  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1500  
 Rack travel in mm : 11.00  
 Tolerance mm : ± 2.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 118.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

---

CONTROL LEVER

control lever  
 position degree : 122.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.90  
 Rated speed rpm : 1425  
 Tolerance 1/min : ± 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1545  
 Tolerance 1/min : ± 15  
 rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1650

---

LOW IDLE

control lever  
 position degree : 77.0  
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 325  
 rack travel mm : 5.60  
 Tolerance mm : ± 0.10  
 Rated speed rpm : 200  
 CRT mm min. : > 8.00

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.60  
Tolerance mm : ± 0.05

Rated speed rpm : 1200  
rack travel mm : 14.70  
Tolerance mm : ± 0.10

Rated speed rpm : 900  
rack travel mm : 13.50  
Tolerance mm : ± 0.10

Rated speed rpm : 1350  
rack travel mm : 14.90  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1350  
Pressure hPa : 1200  
rack travel mm : 14.90  
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1350  
rack travel mm : 9.25  
Tolerance mm : ± 0.10

Rated speed rpm : 1350

Pressure hPa : 800  
rack travel mm : 13.00  
Tolerance mm : ± 0.15

Pressure hPa : 300  
rack travel mm : 10.05  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

BREAKAWAY

Rack travel in mm : 13.90  
Rated speed rpm : 1425  
Tolerance 1/min : ± 5

---

WARM-START DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0

---

COLD-START DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0

---

LOW IDLE

Rated speed rpm : 325  
rack travel mm : 5.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.12.95  
Test oil : ISO 4113  
Combination No. : 0 403 446 335  
Injection pump  
Pump designation : PES6MW100/72ORS1243  
EP type number : 0 413 406 243

Governor  
Governor design. : RQV325...1350MW152K  
Governor no. : 0 420 083 981

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT  
Motor : 8060.45.7200  
Power KW : 167.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.45  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 12.00  
Tolerance mm : +- 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.60  
Tolerance mm : +- 0.05

Del. quantity  
cm3/1000 strokes : 118.5

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Speed  
Tolerance  
cm3/1000 strokes : 4.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 5.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.83  
Tolerance mm : + 0.20

Rated speed rpm : 1412  
guide sleeve  
travel mm : 10.24  
Tolerance mm : + 0.15

Rated speed rpm : 887  
guide sleeve  
travel mm : 5.79  
Tolerance mm : + 0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 3.47  
Tolerance mm : + 0.25

Rated speed rpm : 1670  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 10.00  
Tolerance mm : + 2.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

CONTROL LEVER

control lever  
position degree : 124.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1425  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1540  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1630

---

LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 325  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 7.50

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.60  
Tolerance mm : ± 0.05

Rated speed rpm : 1200  
rack travel mm : 14.25  
Tolerance mm : ± 0.10

Rated speed rpm : 900  
rack travel mm : 13.30  
Tolerance mm : ± 0.10

Rated speed rpm : 1350  
rack travel mm : 14.25  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 11.80  
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.10  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 11.25  
Tolerance mm : ± 0.10

Pressure hPa : 300  
rack travel mm : 10.05  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1425  
Tolerance 1/min : ± 5

---

WARM-START DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0



---

COLD-START DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0

---

LOW IDLE

Rated speed rpm : 325  
rack travel mm : 5.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.12.95  
Test oil : ISO 4113  
Combination No. : 0 403 476 117  
Injection pump  
Pump designation : PES6MW100/720RS1131  
: -1  
EP type number : 0 413 406 165  
Governor  
Governor design. : RSV750...1200MWOA329  
: -15  
Governor no. : 0 420 085 193  
Cust. part No. : 0220748502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 148.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : +- 1.0  
Prestroke mm : 3.65  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1180  
Rack travel in mm : 13.15  
Tolerance mm : +- 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0  
Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 750

Rack travel in mm : 4.70  
 Tolerance mm : +- 0.40

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.5

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
 Tolerance mm : +- 0.35

governor spring  
 pre-tension  
 click setting x : 4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 104.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 3.0

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

C27

control lever  
 position degree : 97.0  
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 1.00  
 Tolerance mm : +- 0.70  
 Rated speed rpm : 1400

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1230  
 rack travel mm : 12.10

Rated speed rpm : 1314  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1231  
 rack travel mm : 12.10

Rated speed rpm : 1315  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1232  
 rack travel mm : 12.10

Rated speed rpm : 1316  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1233  
 rack travel mm : 12.10

Rated speed rpm : 1317  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1238  
 rack travel mm : 12.10

Rated speed rpm : 1322  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1239  
 rack travel mm : 12.10

Rated speed rpm : 1323  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

---

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 750  
rack travel mm : 4.70  
Tolerance mm : ± 0.25

rack travel mm : 2.00  
Rated speed rpm : 775  
Tolerance 1/min : ± 25

Rated speed rpm : 100

CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 1180  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.15  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 2.20  
Tolerance mm : ± 0.15

Pressure hPa : 350  
rack travel mm : 1.10  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Rated speed rpm : 750  
rack travel mm : 4.70  
Tolerance mm : ± 0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.12.95  
Test oil : ISO 4113

Combination No. : 0 400 836 021

Injection pump  
Pump designation : PES6A80D410/3RS2527  
EP type number : 0 410 886 059

Governor  
Governor design. : RQV300...1400AB951DL  
Governor no. : 0 420 214 215

Cust. part No. :

Customer-spec. information  
Customer : KHD  
Motor : F6L912

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0  
 Rated speed rpm : 300  
 Rack travel in mm : 6.00  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.20  
 Tolerance mm : + 0.15

Rated speed rpm : 1454  
 guide sleeve  
 travel mm : 8.60  
 Tolerance mm : + 0.15

Rated speed rpm : 970  
 guide sleeve  
 travel mm : 5.00  
 Tolerance mm : + 0.25

Rated speed rpm : 1720  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1440  
 Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
 Aneroid pressure  
 hPa : -

D03

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 69.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

CONTROL LEVER

control lever  
 position degree : 103.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.00  
 Rated speed rpm : 1445  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1550  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1700

LOW IDLE

control lever  
 position degree : 50.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 6.00  
 Tolerance mm : + 0.10

Rated speed rpm : 100  
 CRT mm min. : > 7.50  
 Rated speed rpm : 495

TORQUE CONTROL

Dimension a mm : 0.80  
 Rated speed rpm : 1400

rack travel mm : 12.05  
Tolerance mm : +- 0.05  
  
Rated speed rpm : 700  
rack travel mm : 12.85  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 1045  
rack travel mm : 12.70  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 1150  
rack travel mm : 12.40  
Tolerance mm : +- 0.10

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220  
  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 65.5  
Tolerance  
cm3/1000 strokes : +- 1.5  
Check tolerance  
cm3/1000S. : +- 3.0

---

BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1445  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.45  
Tolerance mm : +- 0.15

---

LOW IDLE

D04

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 12.0  
Tolerance  
cm3/1000 strokes : +- 1.5  
Check tolerance  
cm3/1000S. : +- 3.5  
Spreed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 6.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.12.95  
Test oil : ISO 4113  
Combination No. : 0 400 876 430  
Injection pump  
Pump designation : PES6A95D410RS2864  
EP type number : 0 410 896 888  
Governor  
Governor design. : RSV400...1050A2C2263  
: -10L  
Governor no. : 0 420 232 619  
Cust. part No. : 87 800 862

Customer-spec. information  
Customer : FNH-GEOTECH  
Motor : P 396  
Power kW : 142.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

D05

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

BASIC SETTING

Rated speed rpm : 750  
Rack travel in mm : 15.00  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 450

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

CONTROL LEVER

control lever  
position degree : 93.0  
tolerance degree :  $\pm$  4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093  
rack travel mm : 12.40

Rated speed rpm : 1163  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1094  
rack travel mm : 12.40

Rated speed rpm : 1164  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1095  
rack travel mm : 12.40

Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1096  
rack travel mm : 12.40

Rated speed rpm : 1166  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1097  
rack travel mm : 12.40

Rated speed rpm : 1167  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1098  
rack travel mm : 12.40

Rated speed rpm : 1168  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

---

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 5.20

Testing:

Rated speed rpm : 450  
rack travel mm : 5.70  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 590  
Tolerance 1/min : ± 30

---

TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 15.15  
Tolerance mm : ± 0.10

Rated speed rpm : 1050  
rack travel mm : 12.90  
Tolerance mm : ± 0.05

Rated speed rpm : 1050  
rack travel mm : 13.40  
Tolerance mm : ± 0.10

Rated speed rpm : 950  
rack travel mm : 14.30  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 15.15  
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.30  
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 750  
rack travel mm : 13.70  
Tolerance mm : ± 0.05

Pressure hPa : 500  
rack travel mm : 11.40  
Tolerance mm : ± 0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 11.0

---

LOW IDLE

Rated speed rpm : 450  
rack travel mm : 5.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.12.95  
Test oil : ISO 4113  
  
Combination No. : 0 401 849 757  
  
Injection pump  
Pump designation : PE10P120A520/4LS3863  
EP type number : 0 411 897 711

Governor  
Governor design. : RQ300/930PA1230  
Governor no. : 0 421 801 792

Cust. part No. :

---

Customer-spec. information  
Customer : DAEWOO  
Motor : D2840LE

---

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : +- 0.1  
  
Overflow quantity  
min. l/h : 100  
Tolerance l/h : +- 10.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
  
Prestroke mm : 4.05  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
  
Firing order : 10- 9- 4- 1- 8  
                  : - 7- 6- 3- 5  
                  : - 2  
  
Phasing : 0-45-72-117-144  
          : -189-216-261-288  
          : -333  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50  
  
Start of delivery mark  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75  
  
Barrel no. : 10

---

BASIC SETTING

Rated speed rpm : 850  
  
Rack travel in mm : 12.90

---

Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 7.00  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.44  
Tolerance mm : ± 0.10

Rated speed rpm : 932  
guide sleeve  
travel mm : 6.37  
Tolerance mm : ± 0.10

Rated speed rpm : 880  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 433  
guide sleeve  
travel mm : 4.94  
Tolerance mm : ± 0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

CONTROL LEVER

control lever  
position degree : 32.0  
tolerance degree : ± 4.0

control lever  
position degree : 94.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.90  
Rated speed rpm : 925  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 970  
Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50  
Rated speed rpm : 1100

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

control lever  
position degree : 12.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 415  
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 9.40

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.90  
Tolerance mm : ± 0.05

Rated speed rpm : 650  
rack travel mm : 12.90  
Tolerance mm : ± 0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650

Del. quantity  
cm<sup>3</sup>/1000 strokes : 212.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

#### BREAKAWAY

Rack travel in mm : 11.90  
Rated speed rpm : 925  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.12.95  
Test oil : ISO 4113

Combination No. : 0 401 876 793

Injection pump  
Pump designation : PE6P120A320RS3314  
EP type number : 0 411 826 806

Governor  
Governor design. : RSV350...1100P1A559  
Governor no. : 0 421 833 389

Cust. part No. : 1342534

---

Customer-spec. information  
Customer : SCANIA  
Motor : D9

---

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper  
(RoBo diaphragm) : 4.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

---

Del. quantity cm<sup>3</sup>/1000 strokes : 152.0



<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0
<hr/>	
Rack travel in mm	: 5.20
Tolerance mm	: + 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 18.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 4.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 6.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 3.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 152.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spread	

Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

---

CONTROL LEVER

control lever	
position degree	: 40.0
tolerance degree	: + 4.0

control lever	
position degree	: 90.0
tolerance degree	: + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 750
rack travel mm	: 10.45

Rated speed rpm	: 788
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 850

Rated speed rpm	: 751
rack travel mm	: 10.45

Rated speed rpm	: 789
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 850

Rated speed rpm	: 752
rack travel mm	: 10.45

Rated speed rpm	: 790
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 850

Rated speed rpm	: 753
rack travel mm	: 10.45

Rated speed rpm	: 791
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 850

Rated speed rpm : 754  
rack travel mm : 10.45

Rated speed rpm : 792  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 850

Rated speed rpm : 755  
rack travel mm : 10.45

Rated speed rpm : 793  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 850

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.45  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.45  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 180  
rack travel mm : 10.50  
Tolerance mm : ± 0.15

Pressure hPa : 250

rack travel mm : 10.95  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.12.95  
Test oil : ISO 4113

Combination No. : 0 402 044 700

Injection pump  
Pump designation : PES4P110A32ORS3350  
EP type number : 0 412 014 700

Governor  
Governor design. : RQV350...1400PA1221K  
Governor no. : 0 421 815 472

Cust. part No. : 16700-D8703 / M  
: -2004

Customer-spec. information

Customer : NMI  
Motor : B4.40 EURO II  
Power KW : 101.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : 180.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 15.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0

<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 9.50
Tolerance mm	: ± 0.30
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 31.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.5
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 5.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.46
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1417
guide sleeve	
travel mm	: 9.99
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 994
guide sleeve	
travel mm	: 6.77
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 610
guide sleeve	
travel mm	: 3.96
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1730
guide sleeve	
travel mm	: 13.50

Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 1515
<hr/>	
Rack travel in mm	: 14.50
Tolerance mm	: ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 178.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 3.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

---

CONTROL LEVER

control lever	
position degree	: 65.0
tolerance degree	: ± 4.0
<hr/>	
control lever	
position degree	: 122.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 14.40
Rated speed rpm	: 1410
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1585
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1640

---

LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : +- 4.0

control lever  
position degree : 26.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 9.50  
Tolerance mm : +- 0.10

Rated speed rpm : 250  
CRT mm min. : > 10.80

Rated speed rpm : 500

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 15.40  
Tolerance mm : +- 0.05

Rated speed rpm : 780  
rack travel mm : 13.70  
Tolerance mm : +- 0.15

Rated speed rpm : 1000  
rack travel mm : 14.30  
Tolerance mm : +- 0.20

Rated speed rpm : 1250  
rack travel mm : 15.40  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1300  
Pressure hPa : 1500  
rack travel mm : 15.40  
Tolerance mm : +- 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1300  
rack travel mm : 12.75  
Tolerance mm : +- 0.10

Rated speed rpm : 1300

Pressure hPa : 940  
rack travel mm : 14.45  
Tolerance mm : +- 0.10

Pressure hPa : 520  
rack travel mm : 13.25  
Tolerance mm : +- 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : > 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : > 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 780  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

#### BREAKAWAY

Rack travel in mm : 14.40  
Rated speed rpm : 1410  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 9.50  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.12.95  
Test oil : ISO 4113  
Combination No. : 0 402 046 864  
Injection pump  
Pump designation : PES6P120A320RS3337  
: -1  
EP type number : 0 412 026 772  
Governor  
Governor design. : RQV300...1250PA1149  
: -1K  
Governor no. : 0 421 815 421  
Cust. part No. : CCEP 5142A 66-219

Customer-spec. information  
Customer : RVI  
Motor : MIDR 06-02-26 W4  
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 084  
Inlet press. bar : 2.5  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 13.00  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 13.15  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -8.20  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.31  
Tolerance mm : ± 0.20

Rated speed rpm : 1328  
guide sleeve  
travel mm : 9.98  
Tolerance mm : ± 0.15

Rated speed rpm : 876  
guide sleeve  
travel mm : 6.02  
Tolerance mm : ± 0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.59  
Tolerance mm : ± 0.25

Rated speed rpm : 1600  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 12.15  
Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1312  
Tolerance 1/min : ± 5

rack travel mm : -9.20  
Rated speed rpm : 1440  
Tolerance 1/min : ± 15

rack travel mm : -12.65  
Tolerance mm : ± 0.50  
Rated speed rpm : 1550

---

LOW IDLE

control lever  
position degree : 245.0  
tolerance degree : ± 4.0

Testing:



Rated speed rpm : 300  
rack travel mm : -8.20  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : < -7.40

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850  
rack travel mm : -1.85  
Tolerance mm : + 0.15

Rated speed rpm : 350  
rack travel mm : -1.60  
Tolerance mm : + 0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1000  
rack travel mm : -1.40

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1000  
rack travel mm : -3.40  
Tolerance mm : + 0.20

Rated speed rpm : 1000

Pressure hPa : 240  
rack travel mm : -2.55  
Tolerance mm : + 0.10

Pressure hPa : 320  
rack travel mm : -1.80  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 175  
Rated speed rpm : < 240

Check  
speed 1/min : > 155

Check  
speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1312  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : -8.20  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.12.95  
Test oil : ISO 4113  
  
Combination No. : 0 402 046 877  
  
Injection pump  
Pump designation : PES6P120A320RS3337  
: -1  
EP type number : 0 412 026 772  
  
Governor  
Governor design. : RQV300...1250PA1149  
: -2K  
Governor no. : 0 421 815 504  
  
Cust. part No. : CCEP 5158 66-218

Customer-spec. information  
Customer : RVI  
Motor : MIDR 06-02-26 V4  
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 084  
  
Inlet press. bar : 2.5  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 13.00  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250  
  
Rack travel in mm : 12.60  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -8.30  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.31  
Tolerance mm : + 0.20

Rated speed rpm : 1311  
guide sleeve  
travel mm : 9.80  
Tolerance mm : + 0.15

Rated speed rpm : 868  
guide sleeve  
travel mm : 5.97  
Tolerance mm : + 0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.59  
Tolerance mm : + 0.25

Rated speed rpm : 1600  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1395

Rack travel in mm : 11.60  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 293.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1296  
Tolerance 1/min : + 5

rack travel mm : -8.60  
Rated speed rpm : 1426  
Tolerance 1/min : + 15

rack travel mm : -12.10  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 241.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : -8.30  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : < -6.67

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850  
rack travel mm : -1.85  
Tolerance mm : + 0.15

Rated speed rpm : 350  
rack travel mm : -2.70  
Tolerance mm : + 0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1000  
rack travel mm : -1.20

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1000  
rack travel mm : -2.45  
Tolerance mm : + 0.20

Rated speed rpm : 1000

Pressure hPa : 160  
rack travel mm : -2.15  
Tolerance mm : + 0.10

Pressure hPa : 280  
rack travel mm : -1.20  
Tolerance mm : + 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 225

Check speed 1/min : > 80

Check speed 1/min : < 245

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1296  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : -8.30  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.10.95  
Test oil : ISO 4113

Combination No. : 0 402 076 762

Injection pump  
Pump designation : PES6P120A720RS3322  
EP type number : 0 412 026 764

Governor  
Governor design. : RSV650...1250P8A567  
: -1  
Governor no. : 0 421 833 422

Cust. part No. :

Customer-spec. information  
Customer : FNH-GEOTECH  
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 105  
Tolerance L/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Check  
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.70  
 Tolerance mm :  $\pm$  0.05  


---

 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 137.5  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  


---

 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 21.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.50  
 Tolerance mm :  $\pm$  0.20  
 governor spring  
 pre-tension  
 click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
 Aneroid pressure  
 hPa : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 137.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 111.0  
 tolerance degree :  $\pm$  4.0

RATED SPEED

Rated speed rpm : 1330

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1293  
 rack travel mm : 9.65

Rated speed rpm : 1325  
 Tolerance 1/min :  $\pm$  5  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1500

Rated speed rpm : 1294  
 rack travel mm : 9.65

Rated speed rpm : 1326  
 Tolerance 1/min :  $\pm$  5  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1295  
 rack travel mm : 9.65

Rated speed rpm : 1327  
 Tolerance 1/min :  $\pm$  5  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1296  
 rack travel mm : 9.65

Rated speed rpm : 1328  
 Tolerance 1/min :  $\pm$  5  
 rack travel mm : 4.00



rack travel mm : 0.85  
 Tolerance mm : +- 0.55  
  
 Rated speed rpm : 1297  
 rack travel mm : 9.65  
  
 Rated speed rpm : 1329  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00  
  
 rack travel mm : 0.85  
 Tolerance mm : +- 0.55  
  
 Rated speed rpm : 1298  
 rack travel mm : 9.65  
  
 Rated speed rpm : 1330  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00  
  
 rack travel mm : 0.85  
 Tolerance mm : +- 0.55

LOW IDLE

control lever  
 position degree : 80.0  
 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 650  
 rack travel mm : 4.10

Testing:

Rated speed rpm : 650  
 rack travel mm : 4.60  
 Tolerance mm : +- 0.10

rack travel mm : 2.00  
 Rated speed rpm : 750  
 Tolerance 1/min : +- 50

TORQUE CONTROL

Rated speed rpm : 1250  
 rack travel mm : 10.70  
 Tolerance mm : +- 0.05

Rated speed rpm : 900  
 rack travel mm : 11.10  
 Tolerance mm : +- 0.10

Rated speed rpm : 1100  
 rack travel mm : 10.95  
 Tolerance mm : +- 0.10

Rated speed rpm : 700  
 rack travel mm : 11.10  
 Tolerance mm : +- 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
 Pressure hPa : 1500  
 rack travel mm : 11.10  
 Tolerance mm : +- 0.10

MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 7.70  
 Tolerance mm : +- 0.10

Rated speed rpm : 500

Pressure hPa : 630  
 rack travel mm : 10.75  
 Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : > 100

Check  
 speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 900  
 Del. quantity  
 cm3/1000 strokes : 150.5  
 Tolerance  
 cm3/1000 strokes : +- 3.0  
 Check tolerance  
 cm3/1000S. : +- 6.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm3/1000 strokes : 82.0  
 Tolerance  
 cm3/1000 strokes : +- 1.0  
 Check tolerance  
 cm3/1000S. : +- 4.0

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.12.95  
Test oil : ISO 4113  
Combination No. : 0 402 646 604  
Injection pump  
Pump designation : PE6P120A720RS7188  
: -10  
EP type number : 0 412 626 924  
Governor  
Governor design. : RQV350...1050PA795  
: -13  
Governor no. : 0 421 814 017  
Cust. part No. : 1337549

Customer-spec. information  
Customer : SCANIA  
Motor : DS11 Allvarv

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Vibration damper  
(RoBo diaphragm) : 3.1  
Test oil inlet temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 2.5  
Tolerance bar : +- 0.1  
Test nozzle holde assembly : 1 688 901 104  
Opening pressure bar : 251.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
Prestroke mm : 4.45  
Tolerance mm : +- 0.05  
Check tolerance mm : +- 0.10  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check tolerance °NW : +- 0.50  
Start of delivery mark  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 13.35  
Tolerance mm : +- 0.05  
Del. quantity cm3/1000 strokes : 236.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 4.70  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1280

Rack travel in mm : 12.00  
Tolerance mm : + 1.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 45.0  
tolerance degree : + 4.0

control lever  
position degree : 102.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1230  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : + 4.0

control lever  
position degree : 15.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 8.00

Rated speed rpm : 300

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.35  
Tolerance mm : + 0.05

Rated speed rpm : 1050  
rack travel mm : 13.35

Tolerance mm : +- 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.35  
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm : +- 0.20

Rated speed rpm : 500

Pressure hPa : 440  
rack travel mm : 12.05  
Tolerance mm : +- 0.05

Pressure hPa : 270  
rack travel mm : 11.00  
Tolerance mm : +- 0.15

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1095  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.12.95  
Test oil : ISO 4113

Combination No. : 0 402 646 608

Injection pump  
Pump designation : PE6P120A720RS7188  
: -10J  
EP type number : 0 412 626 926

Governor  
Governor design. : RQ200/950PA745-3  
Governor no. : 0 421 801 579

Cust. part No. : 1344920

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11 71

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper  
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity min. l/h : 235  
Tolerance l/h : ± 20.0

Test nozzle holde assembly : 1 688 901 104

Opening pressure bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 10.75  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.41  
Tolerance mm : + 0.20

Rated speed rpm : 1006  
guide sleeve  
travel mm : 4.90  
Tolerance mm : + 0.15

Rated speed rpm : 930  
guide sleeve  
travel mm : 4.50  
Tolerance mm : + 0.10

Rated speed rpm : 355  
guide sleeve  
travel mm : 2.97  
Tolerance mm : + 0.10

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.50  
Tolerance mm : + 0.10

Rated speed rpm : 1045  
guide sleeve  
travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 1360  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 600  
Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 41.0  
tolerance degree : + 4.0

control lever  
position degree : 95.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.70  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 62.0  
tolerance degree : + 4.0

control lever  
position degree : 7.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min : + 20

Rated speed rpm : 150

CRT mm min. : > 6.00

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 10.75  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 10.75  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

BREAKAWAY

Rack travel in mm : 9.70  
Rated speed rpm : 995  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.75  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.95  
Test oil : ISO 4113

Combination No. : 0 402 646 657

Injection pump  
Pump designation : PE6P130A32ORS7368  
EP type number : 0 412 636 836

Governor  
Governor design. : RQV250...1125PA1210K  
Governor no. : 0 421 815 460

Cust. part No. : 866737-P04 v. 11/95

Customer-spec. information

Customer : PENTA  
Motor : TAMD 122 P  
Power KW : 426.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper  
(RoBo diaphragm) : 4.1

Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5  
Tolerance bar : + 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.45  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10

Rack travel in mm : 7.00  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 11.40  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 313.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

Rated speed rpm : 260

Rack travel in mm : 4.70  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 260  
guide sleeve  
travel mm : 1.69  
Tolerance mm : ± 0.25

Rated speed rpm : 1176  
guide sleeve  
travel mm : 10.15  
Tolerance mm : ± 0.25

Rated speed rpm : 782  
guide sleeve  
travel mm : 6.36  
Tolerance mm : ± 0.25

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm : ± 0.25

Rated speed rpm : 325

guide sleeve  
travel mm : 2.73  
Tolerance mm : ± 0.25

Rated speed rpm : 430  
guide sleeve  
travel mm : 3.61  
Tolerance mm : ± 0.25

Rated speed rpm : 1420  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1284

Rack travel in mm : 10.50  
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1125  
Aneroid pressure  
hPa : 2000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 313.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

CONTROL LEVER

control lever  
position degree : 64.0  
tolerance degree : ± 4.0

control lever  
position degree : 118.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.40  
Rated speed rpm : 1165  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1246

Tolerance 1/min : + 15  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

control lever  
position degree : 18.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 260  
rack travel mm : 4.70  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : > 5.90

Rated speed rpm : 330

---

TORQUE CONTROL

Rated speed rpm : 1125  
rack travel mm : 11.40  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 10.55  
Tolerance mm : + 0.15

Rated speed rpm : 500  
rack travel mm : 9.70  
Tolerance mm : + 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1125  
Pressure hPa : 2000  
rack travel mm : 11.40  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 7.15  
Tolerance mm : + 0.20

Rated speed rpm : 1125

Pressure hPa : 1190  
rack travel mm : 3.80  
Tolerance mm : + 0.20

Pressure hPa : 160  
rack travel mm : 0.25  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 311.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 14.0

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 187.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0

---

BREAKAWAY

Rack travel in mm : 10.40

Rated speed rpm : 1165  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 7.15  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 20.0

---

LOW IDLE

Rated speed rpm : 260  
rack travel mm : 4.70  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.09.95  
Test oil : ISO 4113  
Combination No. : 0 402 698 806  
Injection pump  
Pump designation : PE8P120A720LS7331  
                  : -10  
EP type number : 0 412 628 896  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 022

Cust. part No. : 1362097

Customer-spec. information  
Customer : SCANIA  
Motor : DSC1409,DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 5.05

Prestroke mm : 5.05  
Tolerance mm : +- 0.05  
Tolerance mm : +- 0.05

Check  
tolerance mm : +- 0.10  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
Tolerance mm : +- 1.50

Firing order : 1- 2- 7- 3- 4  
                  : - 5- 6- 8

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50

Start of delivery mark

Barrel no. : 1

Vibration  
damper  
(RoBo diaphragm) : 3.2

---

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check

tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700  
Uact V : 3.000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 248.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
Uact V : 3.000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.12.95  
Test oil : ISO 4113  
Combination No. : 0 402 736 890  
Injection pump  
Pump designation : PES6P120A120RS7314  
EP type number : 0 412 726 901  
Governor  
Governor design. : RQV400...1250PA964  
                  : -32K  
Governor no. : 0 421 815 486  
Cust. part No. : 3282607

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 086  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

E15

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 12.50  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
Phasing : 0-60-120-180-240  
                  : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
Start of delivery blocking  
°NW after s.o.d. : 6.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm	:	14.20
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity cm <sup>3</sup> /1000 strokes	:	149.0
<hr/>		
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
<hr/>		
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	5.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	9.0
<hr/>		
Rated speed rpm	:	400
Rack travel in mm	:	6.50
Tolerance mm	:	+ 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	:	20.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 3.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 5.0
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	7.0
Check tolerance cm <sup>3</sup> /1000S.	:	11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	400
guide sleeve travel mm	:	1.39
Tolerance mm	:	+ 0.20
<hr/>		
Rated speed rpm	:	1314
guide sleeve travel mm	:	7.65
Tolerance mm	:	+ 0.15
<hr/>		
Rated speed rpm	:	864
guide sleeve travel mm	:	4.76
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	550

guide sleeve travel mm	:	3.33
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1700
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	1430
Rack travel in mm	:	13.60
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1250
Aneroid pressure hPa	:	1500
Del. quantity cm <sup>3</sup> /1000 strokes	:	149.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	59.0
tolerance degree	:	+ 4.0
<hr/>		
control lever position degree	:	116.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	13.20
Rated speed rpm	:	1295
Tolerance 1/min	:	+ 5
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1490
Tolerance 1/min	:	+ 15
<hr/>		
rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1550



---

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

control lever  
position degree : 15.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 400  
rack travel mm : 6.50  
Tolerance mm : ± 0.10

Rated speed rpm : 300

CRT mm min. : > 8.50

Rated speed rpm : 430

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 14.20  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 12.75  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
rack travel mm : 12.15  
Tolerance mm : ± 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 1500  
rack travel mm : 14.20  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1250  
Pressure hPa : 480  
rack travel mm : 11.80  
Tolerance mm : ± 0.20

Pressure hPa : 700  
rack travel mm : 13.50  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 270  
Rated speed rpm : < 340

Check  
speed 1/min : > 250  
Check  
speed 1/min : < 360

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 13.20  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

LOW IDLE

Rated speed rpm : 400  
rack travel mm : 6.50  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.12.95  
Test oil : ISO 4113

Combination No. : 0 402 746 647

Injection pump  
Pump designation : PES6P120A72DRS7366  
EP type number : 0 412 726 933

Governor  
Governor design. : RQV275...1100PA1208K  
Governor no. : 0 421 815 459

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.4000

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 273.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes :	5.0
<hr/>	
Check tolerance	
cm3/1000S.	: 9.0
Rated speed rpm :	275
Rack travel in mm :	6.80
Tolerance mm :	+ 0.20
Del. quantity	
cm3/1000 strokes :	23.0
Tolerance	
cm3/1000 strokes :	+ 3.0
Check tolerance	
cm3/1000S.	: + 6.0
Spreed	
Tolerance	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	275
guide sleeve	
travel mm :	1.70
Tolerance mm :	+ 0.20
Rated speed rpm :	1155
guide sleeve	
travel mm :	9.75
Tolerance mm :	+ 0.15
Rated speed rpm :	790
guide sleeve	
travel mm :	6.42
Tolerance mm :	+ 0.25
Rated speed rpm :	460
guide sleeve	
travel mm :	3.77
Tolerance mm :	+ 0.25
Rated speed rpm :	1440
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1310
-------------------	------

E20

Rack travel in mm :	10.00
Tolerance mm :	+ 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1100
Aneroid pressure	
hPa :	1200
Del. quantity	
cm3/1000 strokes :	273.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree :	117.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	11.70
Rated speed rpm :	1145
Tolerance 1/min :	+ 5
rack travel mm :	4.00
Rated speed rpm :	1260
Tolerance 1/min :	+ 15
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1350

LOW IDLE

control lever	
position degree :	76.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	275
rack travel mm :	6.80
Tolerance mm :	+ 0.10

Rated speed rpm :	100
-------------------	-----

CRT mm min. : > 8.30  
Rated speed rpm : 335

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.75  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 13.40  
Tolerance mm : + 0.10

Rated speed rpm : 650  
rack travel mm : 13.10  
Tolerance mm : + 0.10

Rated speed rpm : 500  
rack travel mm : 13.10  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : 1200  
rack travel mm : 13.40  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 800  
rack travel mm : 9.70  
Tolerance mm : + 0.10

Rated speed rpm : 800

Pressure hPa : 290  
rack travel mm : 10.70  
Tolerance mm : + 0.20

Pressure hPa : 520  
rack travel mm : 12.50  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 170  
Rated speed rpm : < 220

Check speed 1/min : > 150  
Check speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200  
Rated speed rpm : 800  
Del. quantity cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure hPa : 1200  
Rated speed rpm : 500  
Del. quantity cm<sup>3</sup>/1000 strokes : 264.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure hPa : -  
Rated speed rpm : 500  
Del. quantity cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.20  
Tolerance mm : + 0.30  
Del. quantity cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.95  
Test oil : ISO 4113  
Combination No. : 0 403 444 155  
Injection pump  
Pump designation : PES4MW100/72ORS1235  
EP type number : 0 413 404 121  
Governor  
Governor design. : RQV300...1300MW139  
Governor no. : 0 420 083 304

Cust. part No. : 0260748502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364A  
Power KW : 79.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 7.80  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.24  
Tolerance mm : + 0.20

Rated speed rpm : 1355  
guide sleeve  
travel mm : 10.32  
Tolerance mm : + 0.15

Rated speed rpm : 894  
guide sleeve  
travel mm : 6.18  
Tolerance mm : + 0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.56  
Tolerance mm : + 0.25

Rated speed rpm : 1600  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1430

Rack travel in mm : 10.00  
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.15  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1450  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 7.80  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 9.50



---

**TORQUE CONTROL**

Rated speed rpm : 1300  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.40  
Tolerance mm : ± 0.10

Rated speed rpm : 1000  
rack travel mm : 13.30  
Tolerance mm : ± 0.10

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 13.40  
Tolerance mm : ± 0.10

**MEASUREMENT**

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 230  
rack travel mm : 1.00  
Tolerance mm : ± 0.10

Pressure hPa : 150  
rack travel mm : 0.40  
Tolerance mm : ± 0.10

---

**START CUT-OUT**

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check speed 1/min : > 80  
Check speed 1/min : < 230

---

**FUEL DELIVERY CHARACTERISTICS**

Aneroid pressure  
hPa : 700

Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

**BREAKAWAY**

Rack travel in mm : 12.15  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

---

**STARTING FUEL DELIVERY**

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

**LOW IDLE**

Rated speed rpm : 300  
rack travel mm : 7.80  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13.12.95
Test oil : ISO 4113
Combination No. : 0 403 466 173
Injection pump
Pump designation : PES6MW100/120RS1241
EP type number : 0 413 406 240
Governor
Governor design. : RSV400...950MWOA384
Governor no. : 0 420 085 285
Cust. part No. : 3930118

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 145.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 7.50
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950
Rack travel in mm : 12.50
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 147.0
Tolerance
cm3/1000 strokes : ± 1.0

<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 7.5
<hr/>	
Rated speed rpm	: 400
<hr/>	
Rack travel in mm	: 5.80
Tolerance mm	: + 0.30
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 22.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.5
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.65
Tolerance mm	: + 0.35
<hr/>	
governor spring	
pre-tension	
click setting x	: 4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 147.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0

Check tolerance	
cm <sup>3</sup> /1000S.	: 7.5

---

CONTROL LEVER

control lever	
position degree	: 80.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.50
Rated speed rpm	: 995
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1080
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1250

rack travel mm	: 4.00
Rated speed rpm	: 1095

---

LOW IDLE

control lever	
position degree	: 68.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 5.30

Testing:

Rated speed rpm	: 400
rack travel mm	: 5.80
Tolerance mm	: + 0.30

rack travel mm	: 2.00
Rated speed rpm	: 505
Tolerance 1/min	: + 35

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.50
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---

TORQUE CONTROL

Rated speed rpm	: 950
-----------------	-------

rack travel mm : 12.50  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.50  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.25  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 850  
rack travel mm : 11.70  
Tolerance mm : ± 0.20

Pressure hPa : 680  
rack travel mm : 10.75  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 11.50  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

F01

rack travel mm : 20.00  
Tolerance mm : ± 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0

---

LOW IDLE

Rated speed rpm : 400  
rack travel mm : 5.80  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.12.95  
Test oil : ISO 4113

Combination No. : 0 400 846 185

Injection pump  
Pump designation : PES6A80D410RS2085Y  
EP type number : 0 410 886 044

Governor  
Governor design. : RQV300...1475AB533DL  
Governor no. : 0 420 214 069

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 352

TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

F02

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 2.20  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

BASIC SETTING

Rated speed rpm : 1450

Rack travel in mm : 8.25  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 46.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.0

Speeed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 300

Rack travel in mm : 7.00  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 14.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.04  
 Tolerance mm : + 0.20

Rated speed rpm : 1516  
 guide sleeve  
 travel mm : 8.76  
 Tolerance mm : + 0.15

Rated speed rpm : 997  
 guide sleeve  
 travel mm : 5.19  
 Tolerance mm : + 0.25

Rated speed rpm : 590  
 guide sleeve  
 travel mm : 3.20  
 Tolerance mm : + 0.25

Rated speed rpm : 1790  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1420  
 Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1450

F03

Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 46.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

CONTROL LEVER

control lever  
 position degree : 114.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 7.20  
 Rated speed rpm : 1510  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1575  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1700

LOW IDLE

control lever  
 position degree : 69.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 7.00  
 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 8.20

Rated speed rpm : 440

TORQUE CONTROL

Rated speed rpm : 1450  
rack travel mm : 8.25  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 9.25  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 9.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1200  
rack travel mm : 8.35  
Tolerance mm : ± 0.15

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

BREAKAWAY

Rack travel in mm : 7.20  
Rated speed rpm : 1510  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.10  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.12.95  
Test oil : ISO 4113  
  
Combination No. : 0 401 876 777  
  
Injection pump  
Pump designation : PE6P120A320RS3261  
EP type number : 0 411 826 796  
  
Governor  
Governor design. : RSV250...1100POA374  
: -11  
Governor no. : 0 421 833 346  
  
Cust. part No. : 864451 P04 v. 6/95

Customer-spec. information  
Customer : PENTA  
Motor : TAMD 102 A

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Vibration damper (RoBo diaphragm) : 4.1  
  
Test oil inlet temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 2 417 413 077  
  
Inlet press. bar : 1.5  
  
Test nozzle holder assembly : 1 688 901 019  
  
Opening pressure bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 067  
Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 3.45  
Tolerance mm : + 0.05  
Check tolerance mm : + 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check tolerance °NW : + 0.50  
  
Start of delivery mark  
Tolerance : + 0.50  
Check tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 700  
  
Rack travel in mm : 12.15  
Tolerance mm : + 0.05

<hr/>	
Del. quantity	
cm3/1000 strokes :	260.0
<hr/>	
Tolerance	
cm3/1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes :	5.0
<hr/>	
Check tolerance	
cm3/1000S.	: 9.0
<hr/>	
Rated speed rpm	: 250
<hr/>	
Rack travel in mm	: 6.50
Tolerance mm	: + 0.20
Del. quantity	
cm3/1000 strokes	: 23.0
Tolerance	
cm3/1000 strokes	: + 3.0
Check tolerance	
cm3/1000S.	: + 6.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 2.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm3/1000 strokes	: 260.0
Tolerance	
cm3/1000 strokes	: + 1.0

F06

Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 44.0
tolerance degree	: + 4.0
<hr/>	
control lever	
position degree	: 94.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.10
Rated speed rpm	: 1145
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1210
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1350
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1220

LOW IDLE

control lever	
position degree	: 69.0
tolerance degree	: + 4.0
<hr/>	
control lever	
position degree	: 19.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 250
rack travel mm	: 6.00
<hr/>	
Testing:	
Rated speed rpm	: 250
rack travel mm	: 6.50
Tolerance mm	: + 0.10

rack travel mm : 2.00  
Rated speed rpm : 395  
Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.15  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.15  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.10  
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 3.60  
Tolerance mm : + 0.10

Pressure hPa : 140  
rack travel mm : 0.25  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 11.10  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.00  
Tolerance mm : + 1.00

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 6.50  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.12.95  
Test oil : ISO 4113

Combination No. : 0 401 876 810

Injection pump  
Pump designation : PE6P120A320RS3359  
EP type number : 0 411 826 815

Governor  
Governor design. : RSV325...1200P1A615  
Governor no. : 0 421 833 503

Cust. part No. : 3825515 P02 v. 10/95

Customer-spec. information  
Customer : PENTA  
Motor : TD 730ME  
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 3.35  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 9.00  
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50

Start of delivery mark

Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.00  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.0

<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 7.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 11.0
<hr/>	
Rated speed rpm	: 325
<hr/>	
Rack travel in mm	: 4.60
Tolerance mm	: ± 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 25.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.5
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 5.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 6.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 5.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 123.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	

Tolerance	
cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 11.0

---

CONTROL LEVER

control lever	
position degree	: 70.0
tolerance degree	: ± 4.0

control lever	
position degree	: 120.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.00
Rated speed rpm	: 1235
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1280
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1400

---

LOW IDLE

control lever	
position degree	: 80.0
tolerance degree	: ± 4.0

control lever	
position degree	: 30.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 325
rack travel mm	: 4.10

Testing:

Rated speed rpm	: 325
rack travel mm	: 4.60
Tolerance mm	: ± 0.10

rack travel mm	: 2.00
Rated speed rpm	: 390
Tolerance 1/min	: ± 30

---

TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.60  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 490  
rack travel mm : 1.10  
Tolerance mm : ± 0.15

Pressure hPa : 290  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 10.00  
Rated speed rpm : 1235  
Tolerance 1/min : ± 5

---

LOW IDLE

Rated speed rpm : 325  
rack travel mm : 4.60  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.12.95  
Test oil : ISO 4113  
Combination No. : 0 402 046 850

Injection pump  
Pump designation : PES6P120A320RS3320  
EP type number : 0 412 026 763

Governor  
Governor design. : RQV275...1000PA995  
: -2  
Governor no. : 0 421 813 940

Cust. part No. : CCEP-5134 66-211

Customer-spec. information  
Customer : RVI  
Motor : MIDR 063540 M/3  
Power KW : 236.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 071

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 19.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.55

Tolerance mm : +- 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.40  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.66  
Tolerance mm : +- 0.10

Rated speed rpm : 1086  
guide sleeve  
travel mm : 8.46  
Tolerance mm : +- 0.10

Rated speed rpm : 773  
guide sleeve  
travel mm : 6.09  
Tolerance mm : +- 0.20

Rated speed rpm : 343  
guide sleeve  
travel mm : 2.33  
Tolerance mm : +- 0.20

Rated speed rpm : 393  
guide sleeve  
travel mm : 2.99  
Tolerance mm : +- 0.20

Rated speed rpm : 490  
guide sleeve  
travel mm : 3.81  
Tolerance mm : +- 0.20

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1180  
Rack travel in mm : 11.40  
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 306.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1075  
Tolerance 1/min : +- 5

rack travel mm : -8.55  
Rated speed rpm : 1195  
Tolerance 1/min : +- 15



rack travel mm : -11.95  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 248.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : -7.40  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm max. : < -5.90

Rated speed rpm : 365

---

TORQUE CONTROL

Rated speed rpm : 600  
Rated speed rpm : 1000  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : -4.00  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -2.25  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 160  
rack travel mm : -1.70  
Tolerance mm : + 0.10

Pressure hPa : 280  
rack travel mm : -0.75  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 195

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 215

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1075  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : -7.40  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.12.95  
Test oil : ISO 4113

Combination No. : 0 402 076 787

Injection pump  
Pump designation : PES6P120A720RS3340  
EP type number : 0 412 026 773

Governor  
Governor design. : RSV400...1050POA602  
Governor no. : 0 421 833 483

Cust. part No. :

Customer-spec. information  
Customer : FNH-GEOTECH  
Motor : EP040B  
Power KW : 176.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity min. L/h : 100  
Tolerance L/h : ± 20.0

Test nozzle holder assembly : 1 688 901 103

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check tolerance °NW : ± 0.75

Start of delivery blocking

Check tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm :	11.25
Tolerance mm :	+ 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes :	158.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes :	+ 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S. :	+ 5.0
<hr/>	
Spread Tolerance cm <sup>3</sup> /1000 strokes :	5.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S. :	9.0
<hr/>	
Rated speed rpm :	400
<hr/>	
Rack travel in mm :	5.00
Tolerance mm :	+ 0.20
Del. quantity cm <sup>3</sup> /1000 strokes :	26.0
Tolerance cm <sup>3</sup> /1000 strokes :	+ 3.0
Check tolerance cm <sup>3</sup> /1000S. :	+ 6.0
Spread Tolerance cm <sup>3</sup> /1000 strokes :	8.0
Check tolerance cm <sup>3</sup> /1000S. :	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
<hr/>	
governor spring pre-tension click setting x :	4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1050
Aneroid pressure hPa :	1600

Del. quantity cm <sup>3</sup> /1000 strokes :	158.0
Tolerance cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance cm <sup>3</sup> /1000S. :	+ 5.0
Spread Tolerance cm <sup>3</sup> /1000 strokes :	5.0
Check tolerance cm <sup>3</sup> /1000S. :	9.0

CONTROL LEVER

control lever position degree :	96.0
------------------------------------	------

RATED SPEED

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1320
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1165

ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	1093
rack travel mm :	10.20
<hr/>	
Rated speed rpm :	1158
Tolerance 1/min :	+ 5
rack travel mm :	4.00
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1320
<hr/>	
Rated speed rpm :	1094
rack travel mm :	10.20
<hr/>	
Rated speed rpm :	1159
Tolerance 1/min :	+ 5
rack travel mm :	4.00
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
<hr/>	
Rated speed rpm :	1095
rack travel mm :	10.20
<hr/>	
Rated speed rpm :	1160
Tolerance 1/min :	+ 5
rack travel mm :	4.00
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55

Rated speed rpm : 1096  
rack travel mm : 10.20

Rated speed rpm : 1161  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1097  
rack travel mm : 10.20

Rated speed rpm : 1162  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

Rated speed rpm : 1098  
rack travel mm : 10.20

Rated speed rpm : 1163  
Tolerance 1/min : + 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55

---

#### LOW IDLE

control lever  
position degree : 75.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.50

Testing:

Rated speed rpm : 400  
rack travel mm : 5.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 535  
Tolerance 1/min : + 50

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 11.25  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 12.40  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 12.50  
Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1600  
rack travel mm : 12.50  
Tolerance mm : + 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.10  
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 980  
rack travel mm : 11.40  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 400  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.12.95  
Test oil : ISO 4113

Combination No. : 0 402 076 788

Injection pump  
Pump designation : PES6P120A720RS3340  
EP type number : 0 412 026 773

Governor  
Governor design. : RSV400...1050POA603  
Governor no. : 0 421 833 484

Cust. part No. :

---

Customer-spec. information  
Customer : FNH-GEOTECH  
Motor : EP 040 B  
Power KW : 154.0

---

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5  
Tolerance bar : +- 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : +- 20.0

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 3.60  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.75

Start of delivery blocking

Check  
tolerance °NW : +- 0.30

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 1050

---

Rack travel in mm : 10.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.00  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1320

rack travel mm : 4.00  
Rated speed rpm : 1155

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093  
rack travel mm : 9.45

Rated speed rpm : 1153  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1094  
rack travel mm : 9.45

Rated speed rpm : 1154  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1095  
rack travel mm : 9.45

Rated speed rpm : 1155  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55



Rated speed rpm : 1096  
rack travel mm : 9.45

Rated speed rpm : 1156  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1097  
rack travel mm : 9.45

Rated speed rpm : 1157  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1098  
rack travel mm : 9.45

Rated speed rpm : 1158  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

---

#### LOW IDLE

control lever  
position degree : 97.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.00

#### Testing:

Rated speed rpm : 400  
rack travel mm : 4.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 535  
Tolerance 1/min : ± 50

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 10.45  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 11.30  
Tolerance mm : ± 0.10

Rated speed rpm : 600  
rack travel mm : 11.35  
Tolerance mm : ± 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.30  
Tolerance mm : ± 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.10  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 10.80  
Tolerance mm : ± 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 400  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.12.95  
Test oil : ISO 4113

Combination No. : 0 402 640 817

Injection pump  
Pump designation : PE12P120A52OLS7826  
EP type number : 0 412 620 817

Governor  
Governer design. : RQV350...1150PA870  
: -4  
Governer no. : 0 421 813 717

Cust. part No. : 0180745402

Customer-spec. information

Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 736.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 15.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 306.0

<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 6.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 10.0
Rated speed rpm	: 350
<hr/>	
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.30
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 15.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.55
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 1206
guide sleeve	
travel mm	: 8.15
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 600
guide sleeve	
travel mm	: 3.55
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 960
guide sleeve	
travel mm	: 5.55
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1291
guide sleeve	
travel mm	: 10.05

Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm	: 1275
<hr/>	
Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: 1300
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 306.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 10.0

CONTROL LEVER

control lever	
position degree	: 117.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 14.30
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1285
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever	
position degree	: 66.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 7.30  
Rated speed rpm : 475

---

TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 15.30  
Tolerance mm : + 0.05  
Rated speed rpm : 750  
rack travel mm : 15.40  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 15.30  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 8.45  
Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 10.20  
Tolerance mm : + 0.05

Pressure hPa : 1100  
rack travel mm : 13.80  
Tolerance mm : + 0.15

---

START CUT-OUT

Rated speed rpm : > 200  
Rated speed rpm : < 310

Check speed 1/min : > 180

Check speed 1/min : < 330

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1300  
Rated speed rpm : 750  
Del. quantity cm<sup>3</sup>/1000 strokes : 315.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance cm<sup>3</sup>/1000S. : + 8.0  
Spreed Tolerance cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure hPa : 1300  
Rated speed rpm : 1150  
Del. quantity cm<sup>3</sup>/1000 strokes : 234.5  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance cm<sup>3</sup>/1000S. : + 4.5  
Spreed Tolerance cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure hPa : -  
Rated speed rpm : 500  
Del. quantity cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance cm<sup>3</sup>/1000S. : + 4.0  
Spreed Tolerance cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance cm<sup>3</sup>/1000S. : 15.0

---

BREAKAWAY

Rack travel in mm : 14.30  
Rated speed rpm : 1195  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 331.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.12.95  
Test oil : ISO 4113

Combination No. : 0 402 640 842

Injection pump  
Pump designation : PE12P120A520/5RS7304  
EP type number : 0 412 620 838

Governor  
Governor design. : RQV300...550/1050PA1  
: 093  
Governor no. : 0 421 814 067

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TBD234-FAUN

TEST BENCH REQUIREMENTS

Inlet line : 3.1,3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Overflow quantity  
min. l/h : 170  
Tolerance l/h : + 10.0

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.20  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 19.50  
Tolerance mm : + 1.50

Firing order : 1- 2- 9-10- 5- 6  
: - 11- 12- 3- 4  
: - 7- 8

Phasing : 0-30-60-90-120-150  
: -180-210-240-270  
: -300-330  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.60  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

<hr/>	
Check tolerance	
cm3/1000S.	: + 4.0
<hr/>	
Spread	
Tolerance	
cm3/1000 strokes	: 6.0
<hr/>	
Check tolerance	
cm3/1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 6.75
Tolerance mm	: + 0.20
Del. quantity	
cm3/1000 strokes	: 38.0
Tolerance	
cm3/1000 strokes	: + 5.0
Check tolerance	
cm3/1000S.	: + 8.0
Spread	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.30
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1107
guide sleeve	
travel mm	: 6.75
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1050
guide sleeve	
travel mm	: 6.00
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 586
guide sleeve	
travel mm	: 5.55
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 636
guide sleeve	
travel mm	: 6.00
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 500

guide sleeve	
travel mm	: 6.00
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 1260
guide sleeve	
travel mm	: 11.50
Tolerance mm	: + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 1160
<hr/>	
Rack travel in mm	: 14.00
Tolerance mm	: + 1.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1250
Del. quantity	
cm3/1000 strokes	: 235.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 9.0

---

CONTROL LEVER

control lever	
position degree	: 51.0
tolerance degree	: + 4.0
<hr/>	
control lever	
position degree	: 115.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 13.70
Rated speed rpm	: 1095
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1155
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1300



---

LOW IDLE

control lever  
position degree : 85.0  
tolerance degree : ± 4.0

control lever  
position degree : 20.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.75  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm min. : > 8.80

Rated speed rpm : 300

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.60  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 13.60  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 14.70  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 2000  
rack travel mm : 14.70  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm : ± 0.20

Rated speed rpm : 500  
Pressure hPa : 225  
rack travel mm : 10.70  
Tolerance mm : ± 0.25

Pressure hPa : 595  
rack travel mm : 12.20  
Tolerance mm : ± 0.05

Pressure hPa : 1250  
rack travel mm : 13.60  
Tolerance mm : ± 0.05

Pressure hPa : 1450  
rack travel mm : 13.95  
Tolerance mm : ± 0.25

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1250  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 234.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 13.70  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.75  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.12.95  
Test oil : ISO 4113

Combination No. : 0 402 646 606

Injection pump  
Pump designation : PE6P120A720RS7188  
: -100  
EP type number : 0 412 626 925

Governor  
Governer design. : RQV200...950PA725  
: -10  
Governer no. : 0 421 814 002

Cust. part No. : 1338073

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11 32

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper  
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde assembly : 1 688 901 104

Opening pressure bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm. : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity cm<sup>3</sup>/1000 strokes : 214.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1140

Rack travel in mm : 9.50  
Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 214.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 59.0  
tolerance degree : + 4.0

control lever  
position degree : 114.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1105  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

control lever  
position degree : 10.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : + 0.10

Rated speed rpm : 150  
CRT mm min. : > 6.00

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.55  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 12.55

Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.55  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 270  
rack travel mm : 11.00  
Tolerance mm : ± 0.15

Pressure hPa : 440  
rack travel mm : 12.05  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 11.50  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.12.95  
Test oil : ISO 4113  
Combination No. : 0 402 646 650  
Injection pump  
Pump designation : PE6P130A720RS7354  
EP type number : 0 412 636 835  
Governor  
Governor design. : RQV300...950PA1002  
                  : -2K  
Governor no. : 0 421 815 434  
Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8210.42.4000

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 2 417 413 076  
Inlet press. bar : 2.5  
Tolerance bar : +- 0.1  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
Prestroke mm : 5.05  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
Rack travel in mm : 13.00  
Tolerance mm : +- 0.50  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50  
Start of delivery mark  
Check  
tolerance °NW : +- 0.40  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950  
Rack travel in mm : 13.10  
Tolerance mm : +- 0.05  
Del. quantity  
cm3/1000 strokes : 274.0  
Tolerance  
cm3/1000 strokes : +- 1.0

<hr/>	
Check tolerance	
cm3/1000S.	: +- 4.0
<hr/>	
Speed	
Tolerance	
cm3/1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm3/1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 4.80
Tolerance mm	: +- 0.20
Del. quantity	
cm3/1000 strokes	: 22.0
Tolerance	
cm3/1000 strokes	: +- 3.0
Check tolerance	
cm3/1000S.	: +- 6.0
Speed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.65
Tolerance mm	: +- 0.20
<hr/>	
Rated speed rpm	: 1010
guide sleeve	
travel mm	: 8.75
Tolerance mm	: +- 0.15
<hr/>	
Rated speed rpm	: 755
guide sleeve	
travel mm	: 6.15
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 500
guide sleeve	
travel mm	: 3.75
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 1340
guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm	: 1185
<hr/>	
Rack travel in mm	: 12.00
Tolerance mm	: +- 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure	
hPa	: 900
Del. quantity	
cm3/1000 strokes	: 274.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Speed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

---

CONTROL LEVER

control lever	
position degree	: 114.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 12.10
Rated speed rpm	: 995
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1110
Tolerance 1/min	: +- 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1300

---

LOW IDLE

control lever	
position degree	: 69.0
tolerance degree	: +- 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm : ± 0.10

Rated speed rpm : 375

---

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.10  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 12.90  
Tolerance mm : ± 0.10

Rated speed rpm : 550  
rack travel mm : 12.10  
Tolerance mm : ± 0.10

Rated speed rpm : 300  
rack travel mm : 11.80  
Tolerance mm : ± 0.30

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 950  
Pressure hPa : 900  
rack travel mm : 13.10  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 950  
rack travel mm : 8.60  
Tolerance mm : ± 0.20

Rated speed rpm : 950  
Pressure hPa : 320  
rack travel mm : 9.95  
Tolerance mm : ± 0.20

Pressure hPa : 610  
rack travel mm : 12.20  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 180  
Rated speed rpm : < 220

Check  
speed 1/min : > 160  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 286.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0



Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.12.95  
Test oil : ISO 4113

Combination No. : 0 402 646 887

Injection pump  
Pump designation : PE6P120A720RS7188  
: -10  
EP type number : 0 412 626 924

Governor  
Governor design. : RQV200...950PA725-7  
Governor no. : 0 421 813 803

Cust. part No. : 1333122

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11 23

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper  
(RoBo diaphragm) : 3.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity min. L/h : 190  
Tolerance L/h : ± 20.0

Test nozzle holder assembly : 1 688 901 104

Opening pressure bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 252.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0
<hr/>	
Rated speed rpm	: 250
<hr/>	
Rack travel in mm	: 4.70
Tolerance mm	: ± 0.30
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 16.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 1150
<hr/>	
Rack travel in mm	: 9.50
Tolerance mm	: ± 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 252.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spread	

Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

CONTROL LEVER

control lever,	
position degree	: 60.0
tolerance degree	: ± 4.0

control lever	
position degree	: 114.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.80
Rated speed rpm	: 995
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1125
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1250

LOW IDLE

control lever	
position degree	: 64.0
tolerance degree	: ± 4.0

control lever	
position degree	: 10.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 250
rack travel mm	: 4.70
Tolerance mm	: ± 0.10

Rated speed rpm	: 150
-----------------	-------

CRT mm min.	: > 6.00
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Rated speed rpm	: 300
-----------------	-------

TORQUE CONTROL

Rated speed rpm	: 950
-----------------	-------

rack travel mm : 13.85  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.85  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 270  
rack travel mm : 11.00  
Tolerance mm : + 0.15

Pressure hPa : 440  
rack travel mm : 12.05  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 995  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.12.95  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 937  
  
Injection pump  
Pump designation : PE6P120A720RS7188  
: -100  
EP type number : 0 412 626 925  
  
Governor  
Governor design. : RQV200...950PA725-7  
Governor no. : 0 421 813 803  
  
Cust. part No. : 1333121

---

Customer-spec. information  
Customer : SCANIA  
Motor : DSC11 21

---

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Vibration damper  
(RoBo diaphragm) : 3.1  
  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder assembly : 1 688 901 104  
  
Opening pressure bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check tolerance °NW : ± 0.50  
  
Start of delivery mark  
  
Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 700  
  
Rack travel in mm : 12.75  
Tolerance mm : ± 0.05  
  
Del. quantity cm<sup>3</sup>/1000 strokes : 220.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm : +- 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1150

Rack travel in mm : 9.50  
Tolerance mm : +- 2.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree : +- 4.0

control lever  
position degree : 60.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.70  
Rated speed rpm : 995  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1120  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 10.0  
tolerance degree : +- 4.0

control lever  
position degree : 62.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : +- 0.10

Rated speed rpm : 150

CRT mm min. : > 6.00

Rated speed rpm : 275

---

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 12.75  
Tolerance mm : +- 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 270  
rack travel mm : 11.00  
Tolerance mm : ± 0.15

Pressure hPa : 440  
rack travel mm : 12.05  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 11.70

Rated speed rpm : 995  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.12.95  
Test oil : ISO 4113  
Combination No. : 0 402 648 793  
Injection pump  
Pump designation : PE8P120A320LS7873  
EP type number : 0 412 628 880

Governor  
Governor design. : RQ300/1050PA1268  
Governor no. : 0 421 801 802

Cust. part No. : 04223118KY0165-17

---

Customer-spec. information  
Customer : KHD  
Motor : BF8M1015/C  
Power KW : 400.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 8- 7- 2- 6  
                  : - 5- 4- 3  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

---

## BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 14.00  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0



---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm : + 0.10

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.66  
Tolerance mm : + 0.20

Rated speed rpm : 1106  
guide sleeve  
travel mm : 6.53  
Tolerance mm : + 0.15

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 458  
guide sleeve  
travel mm : 4.21  
Tolerance mm : + 0.10

Rated speed rpm : 580  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1149

Rack travel in mm : 13.00  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1100  
Tolerance 1/min : + 10

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1280

---

LOW IDLE

control lever  
position degree : 72.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 449  
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 7.26

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.00  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1600  
rack travel mm : 14.00  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.40  
Tolerance mm : + 0.20

Rated speed rpm : 400

Pressure hPa : 570  
rack travel mm : 10.50  
Tolerance mm : + 0.20

Pressure hPa : 1100  
rack travel mm : 13.00  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80

Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1100  
Tolerance 1/min : + 10

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.45  
Tolerance mm : + 0.75  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm : + 0.10  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.12.95  
Test oil : ISO 4113

Combination No. : 0 402 736 888

Injection pump  
Pump designation : PES6P120A120RS7390  
EP type number : 0 412 726 945

Governor  
Governor design. : RQV350...1100PA1237K  
Governor no. : 0 421 815 475

Cust. part No. : 3282740

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 90  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.60

Tolerance mm :  $\pm$  0.05  


---

 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 164.0  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  


---

 Rated speed rpm : 350  


---

 Rack travel in mm : 4.80  
 Tolerance mm :  $\pm$  0.30  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 18.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
 guide sleeve  
 travel mm : 1.93  
 Tolerance mm :  $\pm$  0.20  


---

 Rated speed rpm : 1159  
 guide sleeve  
 travel mm : 10.27  
 Tolerance mm :  $\pm$  0.15  


---

 Rated speed rpm : 710  
 guide sleeve  
 travel mm : 5.79  
 Tolerance mm :  $\pm$  0.25  


---

 Rated speed rpm : 420  
 guide sleeve  
 travel mm : 4.28  
 Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1380  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1200  
 Rack travel in mm : 11.60  
 Tolerance mm :  $\pm$  1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 164.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 69.0  
 tolerance degree :  $\pm$  4.0

control lever  
 position degree : 123.0  
 tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 11.60  
 Rated speed rpm : 1145  
 Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
 Rated speed rpm : 1230  
 Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

control lever  
position degree : 21.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm : ± 0.10

Rated speed rpm : 250  
CRT mm min. : > 7.70

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.60  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 12.30  
Tolerance mm : ± 0.10

Rated speed rpm : 900  
rack travel mm : 12.35  
Tolerance mm : ± 0.15

Rated speed rpm : 600  
rack travel mm : 12.00  
Tolerance mm : ± 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 12.60  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100

rack travel mm : 10.25  
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 170  
rack travel mm : 11.10  
Tolerance mm : ± 0.20

Pressure hPa : 330  
rack travel mm : 12.10  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 280

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 11.60  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.12.95  
Test oil : ISO 4113

Combination No. : 0 402 736 889

Injection pump  
Pump designation : PES6P120A120RS739D  
EP type number : 0 412 726 945

Governor  
Governor design. : RQV350...1100PA1244K  
Governor no. : 0 421 815 477

Cust. part No. : 3282739

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 90  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00



Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.27  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 420  
guide sleeve  
travel mm : 4.28  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1380  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1195  
Rack travel in mm : 12.00  
Tolerance mm :  $\pm$  1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

control lever  
position degree : 20.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 7.50

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.00  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 13.15  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
rack travel mm : 12.25  
Tolerance mm : ± 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 700  
Pressure hPa : 1500  
rack travel mm : 13.20  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 700  
rack travel mm : 10.20  
Tolerance mm : ± 0.20

Rated speed rpm : 700

Pressure hPa : 140  
rack travel mm : 11.10  
Tolerance mm : ± 0.20

Pressure hPa : 300  
rack travel mm : 12.60  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 290

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : +- 0.50  
Del. quantity  
cm3/1000 strokes : 255.0  
Tolerance  
cm3/1000 strokes : +- 20.0  
Check tolerance  
cm3/1000S. : +- 24.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm : +- 0.30  
Del. quantity  
cm3/1000 strokes : 18.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 7.0  
Check tolerance  
cm3/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.12.95  
Test oil : ISO 4113  
  
Combination No. : 0 402 736 892  
  
Injection pump  
Pump designation : PES6P120A120RS7400  
EP type number : 0 412 726 950  
  
Governor  
Governor design. : RQV350...1100PA1244  
                  : -1K  
Governor no. : 0 421 815 488  
  
Cust. part No. : 3282610

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 221.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 2 417 413 086  
  
Inlet press. bar : 1.5  
Tolerance l/h : + 20.0  
  
Test nozzle holde  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 3.30  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : + 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.50  
  
Start of delivery blocking  
  
°NW after s.o.d. : 7.00  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 14.60  
Tolerance mm : + 0.05

Del. quantity  
cm3/1000 strokes : 209.0

---

Tolerance  
cm3/1000 strokes : +- 1.0

---

Check tolerance  
cm3/1000S. : +- 4.0

---

Spreed  
Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.80  
Tolerance mm : +- 0.30  
Del. quantity  
cm3/1000 strokes : 25.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 7.0  
Check tolerance  
cm3/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm : +- 0.20

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.28  
Tolerance mm : +- 0.15

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.80  
Tolerance mm : +- 0.25

Rated speed rpm : 430  
guide sleeve  
travel mm : 4.33  
Tolerance mm : +- 0.25

Rated speed rpm : 1380

guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1220

Rack travel in mm : 13.60  
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 209.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree : +- 4.0

control lever  
position degree : 120.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.60  
Rated speed rpm : 1145  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

control lever  
position degree : 20.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm : ± 0.10

Rated speed rpm : 250  
CRT mm min. : > 8.10

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.60  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 14.05  
Tolerance mm : ± 0.10

Rated speed rpm : 900  
rack travel mm : 14.35  
Tolerance mm : ± 0.15

Rated speed rpm : 600  
rack travel mm : 13.95  
Tolerance mm : ± 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 14.60  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 10.45  
Tolerance mm : ± 0.20

Rated speed rpm : 1100

H02

Pressure hPa : 880  
rack travel mm : 13.20  
Tolerance mm : ± 0.20

Pressure hPa : 240  
rack travel mm : 11.20  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 280

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 13.60  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.00  
Tolerance mm : +- 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.12.95  
Test oil : ISO 4113

Combination No. : 0 402 736 893

Injection pump  
Pump designation : PES6P120A120RS7400  
EP type number : 0 412 726 950

Governor  
Governor design. : RQV350...1100PA1244  
: -2K  
Governor no. : 0 421 815 489

Cust. part No. : 3282609

---

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 206.0

---

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 1050

---



Rack travel in mm : 14.80  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.10  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm : + 0.20

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.28  
Tolerance mm : + 0.15

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.79  
Tolerance mm : + 0.25

Rated speed rpm : 500

guide sleeve  
travel mm : 4.70  
Tolerance mm : + 0.25

Rated speed rpm : 1380  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1215

Rack travel in mm : 13.30  
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree : + 4.0

control lever  
position degree : 122.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.80  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

control lever  
position degree : 20.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 8.20

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.80  
Tolerance mm : + 0.05

Rated speed rpm : 650  
rack travel mm : 14.20  
Tolerance mm : + 0.10

Rated speed rpm : 900  
rack travel mm : 14.70  
Tolerance mm : + 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050  
Pressure hPa : 1500  
rack travel mm : 14.80  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1050  
rack travel mm : 10.40  
Tolerance mm : + 0.20

Rated speed rpm : 1050  
Pressure hPa : 880  
rack travel mm : 13.20  
Tolerance mm : + 0.20

Pressure hPa : 240  
rack travel mm : 11.20  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 280

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

BREAKAWAY

Rack travel in mm : 13.80  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.12.95  
Test oil : ISO 4113

Combination No. : 0 402 736 894

Injection pump  
Pump designation : PES6P120A120RS7400  
EP type number : 0 412 726 950

Governor  
Governor design. : RQV350...1200PA1261  
Governor no. : 0 421 815 495

Cust. part No. : 3282766

---

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 191.0

---

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity min. l/h : 125  
Tolerance l/h : ± 20.0

Test nozzle holder assembly : 1 688 901 101

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant. per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 1150

---

Rack travel in mm : 13.95

Tolerance mm : + 0.05  


---

 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 190.0  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  


---

 Rated speed rpm : 350  


---

 Rack travel in mm : 5.10  
 Tolerance mm : + 0.30  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 25.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 7.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
 guide sleeve  
 travel mm : 1.93  
 Tolerance mm : + 0.20  


---

 Rated speed rpm : 1258  
 guide sleeve  
 travel mm : 10.14  
 Tolerance mm : + 0.15  


---

 Rated speed rpm : 766  
 guide sleeve  
 travel mm : 5.91  
 Tolerance mm : + 0.25  


---

 Rated speed rpm : 450  
 guide sleeve  
 travel mm : 4.49  
 Tolerance mm : + 0.25

Rated speed rpm : 1520  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1340  


---

 Rack travel in mm : 12.60  
 Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
 Aneroid pressure  
 hPa : 1500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 190.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 66.0  
 tolerance degree : + 4.0  


---

 control lever  
 position degree : 120.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.90  
 Rated speed rpm : 1245  
 Tolerance 1/min : + 5  


---

 rack travel mm : 4.00  
 Rated speed rpm : 1360  
 Tolerance 1/min : + 15  


---

 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1450

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

control lever  
position degree : 20.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm : +- 0.10

Rated speed rpm : 250

CRT mm min. : > 8.20

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.95  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
rack travel mm : 13.40  
Tolerance mm : +- 0.10

Rated speed rpm : 750  
rack travel mm : 14.05  
Tolerance mm : +- 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 13.95  
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.40  
Tolerance mm : +- 0.20

Rated speed rpm : 1150

H10

Pressure hPa : 880  
rack travel mm : 13.20  
Tolerance mm : +- 0.20

Pressure hPa : 240  
rack travel mm : 11.20  
Tolerance mm : +- 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 280

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 12.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 16.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 4.0

---

BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 1245  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.12.95  
Test oil : ISO 4113

Combination No. : 0 403 276 010

Injection pump  
Pump designation : PES6MW100/72ORS1526  
EP type number : 0 413 206 025

Governor  
Governor design. : RSV350...1200MWOA355  
: -3  
Governor no. : 0 420 085 275

Cust. part No. : 0260748202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5



---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 Rated speed rpm : 350  
 Rack travel in mm : 3.50  
 Tolerance mm : +- 0.30  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : +- 0.35  
 governor spring  
 pre-tension  
 click setting x : 3.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 96.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

CONTROL LEVER

control lever  
 position degree : 100.0  
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 1.00  
 Tolerance mm : +- 0.70  
 Rated speed rpm : 1400

rack travel mm : 4.00  
 Rated speed rpm : 1315

rack travel mm : 10.15  
 Rated speed rpm : 1245  
 Tolerance 1/min : +- 5

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1240  
 rack travel mm : 10.15

Rated speed rpm : 1300  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1241  
 rack travel mm : 10.15

Rated speed rpm : 1301  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1242  
 rack travel mm : 10.15

Rated speed rpm : 1302  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1243  
 rack travel mm : 10.15

Rated speed rpm : 1303  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1244  
 rack travel mm : 10.15

Rated speed rpm : 1304  
 Tolerance 1/min : +- 4  
 rack travel mm : 4.00

Rated speed rpm : 1245  
 rack travel mm : 10.15

Rated speed rpm : 1305  
 Tolerance 1/min : +- 4

rack travel mm : 4.00

---

LOW IDLE

Testing:

Rated speed rpm : 350  
rack travel mm : 3.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 430  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 11.15  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 11.15  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 11.15  
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 400  
rack travel mm : 1.00  
Tolerance mm : ± 0.10

Pressure hPa : 300  
rack travel mm : 0.50  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 3.50  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.12.95  
Test oil : ISO 4113  
Combination No. : 0 400 463 121  
Injection pump  
Pump designation : PES3A80D410/3RS1324  
EP type number : 0 410 483 017  
Governor  
Governor design. : RSV325...900A7C602  
: -4L  
Governor no. : 0 420 232 604  
Cust. part No. :

Customer-spec. information  
Customer : KHD  
Motor : F3L912

## TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240

## BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 11.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 325  
Rack travel in mm : 8.40  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.20  
Rated speed rpm : 925  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 960  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1100

rack travel mm : 4.00  
Rated speed rpm : 975

LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 7.90

Testing:

Rated speed rpm : 325  
rack travel mm : 8.40  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 450  
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 880  
rack travel mm : 11.20  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 11.25  
Tolerance mm : + 0.10

BREAKAWAY

Rack travel in mm : 10.20  
Rated speed rpm : 925  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : +- 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 10.0

---

LOW IDLE

Rated speed rpm : 325  
rack travel mm : 8.40  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.01.96  
Test oil : ISO 4113  
  
Combination No. : 0 400 876 425  
  
Injection pump  
Pump designation : PES6A95D41ORS2864  
EP type number : 0 410 896 888  
  
Governor  
Governor design. : RSV400...1050A2C2263  
: -7L  
Governor no. : 0 420 232 606  
  
Cust. part No. : 87 800 861

Customer-spec. information  
Customer : FNH-GEOTECH  
Motor : 7.5 L  
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 008  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300

BASIC SETTING

Rated speed rpm : 800  
  
Rack travel in mm : 14.10  
Tolerance mm : ± 0.10  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 650  
 Rack travel in mm : 4.60  
 Tolerance mm : +- 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 20.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.50  
 Tolerance mm : +- 0.20  
 governor spring  
 pre-tension  
 click setting x : 2.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 151.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
 position degree : 100.0  
 tolerance degree : +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1093  
 rack travel mm : 11.60

Rated speed rpm : 1128  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : +- 0.55

Rated speed rpm : 1094  
 rack travel mm : 11.60

Rated speed rpm : 1129  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : +- 0.55

Rated speed rpm : 1095  
 rack travel mm : 11.60

Rated speed rpm : 1130  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : +- 0.55

Rated speed rpm : 1096  
 rack travel mm : 11.60

Rated speed rpm : 1131  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : +- 0.55

Rated speed rpm : 1097  
 rack travel mm : 11.60

Rated speed rpm : 1132  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00

rack travel mm : 0.85  
 Tolerance mm : +- 0.55

Rated speed rpm : 1098  
 rack travel mm : 11.60

Rated speed rpm : 1133  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00



rack travel mm : 0.85  
Tolerance mm : +- 0.55

---

#### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 650  
rack travel mm : 4.10

#### Testing:

Rated speed rpm : 650  
rack travel mm : 4.60  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 740  
Tolerance 1/min : +- 30

---

#### TORQUE CONTROL

Rated speed rpm : 800  
rack travel mm : 14.10  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
rack travel mm : 14.15  
Tolerance mm : +- 0.10

Rated speed rpm : 1050  
rack travel mm : 11.90  
Tolerance mm : +- 0.05

Rated speed rpm : 1050  
rack travel mm : 12.60  
Tolerance mm : +- 0.10

Rated speed rpm : 950  
rack travel mm : 13.35  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.15  
Tolerance mm : +- 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 7.80  
Tolerance mm : +- 0.05

Rated speed rpm : 500

Pressure hPa : 775  
rack travel mm : 13.50  
Tolerance mm : +- 0.05

Pressure hPa : 520  
rack travel mm : 11.10  
Tolerance mm : +- 0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 70.5  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : +- 0.20  
Del. quantity  
cm3/1000 strokes : 160.0  
Tolerance  
cm3/1000 strokes : +- 8.0  
Check tolerance  
cm3/1000S. : +- 11.0

---

#### LOW IDLE

Rated speed rpm : 650  
rack travel mm : 4.60  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 20.0  
Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.08.95  
 Test oil : ISO 4113  
 Combination No. : 0 401 846 959  
 Injection pump  
 Pump designation : PE6P120A72ORS3293  
 EP type number : 0 411 826 801  
 Governor  
 Governor design. : RQV225...1000PA1016  
 : -6  
 Governor no. : 0 421 813 971  
 Cust. part No. :

Customer-spec. information  
 Customer : IVECO-FRANCE  
 Motor : 8215.22.400

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
 Test oil inlet  
 temp. °C : 40  
 Tolerance °C : ± 2.0  
 Overflow valve : 1 417 413 025  
 Inlet press. bar : 1.5  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening pressure  
 bar : 208.5  
 Tolerance bar : ± 1.5  
 Test lines : 1 680 750 075  
 Outside diameter : 8.0

x inside diameter : 3.0  
 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
 Tolerance bar : ± 1.0  
 Prestroke mm : 3.55  
 Tolerance mm : ± 0.05  
 Check  
 tolerance mm : ± 0.10  
 Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2-  
 : 4  
 Phasing : 0-60-120-180-240  
 : -300  
 Tolerance : ± 0.30  
 Check  
 tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000  
 Rack travel in mm : 14.65  
 Tolerance mm : ± 0.05  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 218.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1110

Rack travel in mm : 13.20  
Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 105.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.60  
Rated speed rpm : 1045  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1145  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 375  
rack travel mm : 7.30  
Tolerance mm : ± 0.10

Rated speed rpm : 300

CRT mm min. : > 9.50

Rated speed rpm : 440

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 14.65  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 14.65  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 14.65  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 12.00  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 200  
rack travel mm : 12.40  
Tolerance mm : ± 0.20

Pressure hPa : 260  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 226.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

BREAKAWAY

Rack travel in mm : 13.60  
Rated speed rpm : 1045  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 28.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.01.96  
Test oil : ISO 4113

Combination No. : 0 402 746 949

Injection pump  
Pump designation : PES6P120A720RS7224  
: -2  
EP type number : 0 412 726 893

Governor  
Governor design. : RQV275...1100PA975  
: -3K  
Governor no. : 0 421 815 350

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.406

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Overflow quantity  
min. L/h : 140  
Tolerance L/h : +- 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 5.15  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50

Start of delivery mark

Check  
tolerance °NW : +- 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.30  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.90  
Tolerance mm : + 0.20

Rated speed rpm : 1145  
guide sleeve  
travel mm : 10.40  
Tolerance mm : + 0.15

Rated speed rpm : 750  
guide sleeve  
travel mm : 6.10  
Tolerance mm : + 0.25

Rated speed rpm : 430  
guide sleeve  
travel mm : 3.60  
Tolerance mm : + 0.25

Rated speed rpm : 1360

guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1235  
Rack travel in mm : 10.30  
Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.70  
Rated speed rpm : 1160  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 7.00

Rated speed rpm : 335

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 12.75  
Tolerance mm : ± 0.10

Rated speed rpm : 650  
rack travel mm : 12.00  
Tolerance mm : ± 0.10

Rated speed rpm : 300  
rack travel mm : 11.20  
Tolerance mm : ± 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 900  
Pressure hPa : 1200  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 900  
rack travel mm : 7.50  
Tolerance mm : ± 0.20

Rated speed rpm : 900

Pressure hPa : 380  
rack travel mm : 9.00  
Tolerance mm : ± 0.20

Pressure hPa : 710  
rack travel mm : 11.50  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 170  
Rated speed rpm : < 220

Check  
speed 1/min : > 150  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 231.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1160  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0



Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.12.94  
Test oil : ISO 4113  
Combination No. : 0 402 746 949A  
Injection pump  
Pump designation : PES6P120A720RS7224  
: -2  
EP type number : 0 412 726 893  
Governor  
Governor design. : RQV275...1100PA975  
: -3K  
Governor no. : 0 421 815 350  
Cust. part No. :

---

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.406  
Power KW : 253.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : +- 0.1  
Overflow quantity  
min. l/h : 140  
Tolerance l/h : +- 20.0  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5

J02

Tolerance bar : +- 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
Prestroke mm : 5.15  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.50  
Start of delivery mark  
Check  
tolerance °NW : +- 0.40  
Barrel no. : 1

---

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 11.75  
Tolerance mm : +- 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 195.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 275
<hr/>	
Rack travel in mm	: 5.50
Tolerance mm	: +- 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 26.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 6.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 2.00
Tolerance mm	: +- 0.20
<hr/>	
Rated speed rpm	: 1155
guide sleeve	
travel mm	: 10.55
Tolerance mm	: +- 0.15
<hr/>	
Rated speed rpm	: 764
guide sleeve	
travel mm	: 6.24
Tolerance mm	: +- 0.25
<hr/>	
Rated speed rpm	: 430
guide sleeve	
travel mm	: 3.63
Tolerance mm	: +- 0.25

Rated speed rpm	: 1350
guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1225
Rack travel in mm	: 10.00
Tolerance mm	: +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 195.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 119.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 10.70
Rated speed rpm	: 1145
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1215
Tolerance 1/min	: +- 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever	
position degree	: 66.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 6.70

Rated speed rpm : 300

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.75  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 11.75  
Tolerance mm : + 0.10

Rated speed rpm : 500  
rack travel mm : 10.95  
Tolerance mm : + 0.15

Rated speed rpm : 350  
rack travel mm : 11.40  
Tolerance mm : + 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 11.75  
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 360  
rack travel mm : 8.70  
Tolerance mm : + 0.20

Pressure hPa : 600  
rack travel mm : 10.85  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 170

Rated speed rpm : < 220

Check speed 1/min : > 150

Check speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 10.70  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.50  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.01.96  
Test oil : ISO 4113

Combination No. : 0 402 746 950

Injection pump  
Pump designation : PES6P120A720RS7224  
: -2  
EP type number : 0 412 726 893

Governor  
Governor design. : RQV275...1100PA975  
: -4K  
Governor no. : 0 421 815 351

Cust. part No. :

---

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.320

---

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

J06

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Check  
tolerance °NW : ± 0.40

Barrel no. : 1

---

BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

---

Del. quantity cm <sup>3</sup> /1000 strokes	: 192.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
Rated speed rpm	: 275
Rack travel in mm	: 5.70
Tolerance mm	: + 0.20
Del. quantity cm <sup>3</sup> /1000 strokes	: 30.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance cm <sup>3</sup> /1000S.	: + 6.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve travel mm	: 1.90
Tolerance mm	: + 0.20
Rated speed rpm	: 1145
guide sleeve travel mm	: 10.40
Tolerance mm	: + 0.15
Rated speed rpm	: 750
guide sleeve travel mm	: 6.10
Tolerance mm	: + 0.25
Rated speed rpm	: 430
guide sleeve travel mm	: 3.60
Tolerance mm	: + 0.25
Rated speed rpm	: 1360

guide sleeve travel mm	: 13.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1235
Rack travel in mm	: 10.30
Tolerance mm	: + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1200
Del. quantity cm <sup>3</sup> /1000 strokes	: 192.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 120.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 10.40
Rated speed rpm	: 1170
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1240
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever position degree	: 73.0
tolerance degree	: + 4.0

### Testing:

Rated speed rpm : 275  
rack travel mm : 5.70  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 7.20

Rated speed rpm : 335

---

### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.45  
Tolerance mm : + 0.05

Rated speed rpm : 900  
rack travel mm : 11.10  
Tolerance mm : + 0.10

Rated speed rpm : 650  
rack travel mm : 10.20  
Tolerance mm : + 0.15

Rated speed rpm : 400  
rack travel mm : 9.60  
Tolerance mm : + 0.20

---

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 11.45  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 7.80  
Tolerance mm : + 0.20

Rated speed rpm : 1100

Pressure hPa : 340  
rack travel mm : 8.70  
Tolerance mm : + 0.20

Pressure hPa : 570  
rack travel mm : 10.55  
Tolerance mm : + 0.05

---

### START CUT-OUT

Rated speed rpm : > 170  
Rated speed rpm : < 220

Check  
speed 1/min : > 150  
Check  
speed 1/min : < 240

---

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

### BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 1170  
Tolerance 1/min : + 5

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0



Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.70  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.11.94  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 950A  
  
Injection pump  
Pump designation : PES6P120A72ORS7224  
                  : -2  
EP type number :  
  
Governor  
Governor design. : RQV275...1100PA975  
                  : -4K  
Governor no. :  
  
Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.320

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
  
Start of delivery mark  
  
Check  
tolerance °NW : ± 0.40  
  
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 10.65  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 168.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.90
Tolerance mm	: ± 0.20

Rated speed rpm	: 1145
guide sleeve	
travel mm	: 10.40
Tolerance mm	: ± 0.15

Rated speed rpm	: 750
guide sleeve	
travel mm	: 6.10
Tolerance mm	: ± 0.25

Rated speed rpm	: 430
guide sleeve	
travel mm	: 3.60
Tolerance mm	: ± 0.25

Rated speed rpm	: 1360
guide sleeve	
travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1235
Rack travel in mm	: 10.30
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 168.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 120.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.30
Rated speed rpm	: 1170
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1235
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever	
position degree	: 76.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 275
rack travel mm	: 5.30
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 6.80
-------------	----------

Rated speed rpm	: 335
-----------------	-------

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.65  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 9.50  
Tolerance mm : + 0.10

Rated speed rpm : 900  
rack travel mm : 10.20  
Tolerance mm : + 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 10.65  
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 1100  
Pressure hPa : 420  
rack travel mm : 8.40  
Tolerance mm : + 0.20

Pressure hPa : 600  
rack travel mm : 10.05  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 170  
Rated speed rpm : < 220

Check speed 1/min : > 150  
Check speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 10.30  
Rated speed rpm : 1170  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

End of test specification sheet

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 21.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/10F2000R697
Type number : 0 460 404 088
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.67.2585

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: 0.2
> (from BDC): +-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 2.10...2.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 6.00...6.60
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1200
Del. quantity cm3/
> 1000S.: 42.00...43.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
> 1000S.: 12.00...16.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2300
Del. quantity cm3/
> 1000S.: 23.00...27.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...110.00
mind> 1000S.: 70.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Charge press hPa: 12
Inj.-qty. cm3/
difference> 1000S.: -15.0...21.0 \*
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1200
TD-travel
difference> mm: -0.7...0.9 \*
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1200  
TD travel mm: 2.10...2.30  
> mm: (1.60...2.80)  
electromagnet>Volt: 12  
2nd speed 1/min: 1800  
TD travel mm: 6.00...6.60  
> mm: (5.60...7.00)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1600  
TD travel mm: 4.50...5.30  
> mm: (4.20...5.60)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 2100  
TD travel mm: 7.00...7.80  
> mm: (6.70...8.10)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure> bar: 4.10...4.70  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Supply-pump  
pressure> bar: 6.00...6.60  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2100  
Supply-pump  
pressure> bar: 8.50...9.10  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm3/10s: (26.70...101.10)  
2nd speed 1/min: 2100  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2600

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: -  
2nd speed 1/min: 2400  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 5.0...15.0  
> 1000s.: -  
3rd speed 1/min: 2300  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 23.0...27.0  
> 1000s.: (19.0...31.0)  
4th speed 1/min: 2000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 39.5...42.5  
> 1000s.: (38.5...43.5)  
5th speed 1/min: 1500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 40.50...43.50  
> 1000s.: (39.50...44.50)  
6th speed 1/min: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 42.0...43.0  
> 1000s.: (40.5...44.5)  
7th speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 36.0...40.0  
> 1000s.: (35.0...41.0)

Electr. shutoff:

1st speed 1/min: 375  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 375  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 12.00...16.00  
> 1000s.: (9.00...19.00)  
Dispersion cm3/: 2.5  
> 1000s.: (2.5)  
2nd speed 1/min: 465  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1200  
Inj.-qty. cm<sup>3</sup>/ : -13.0..15.0 #  
difference> 1000s.: -

Shutoff

electromagnet>Volt: 12

2nd speed 1/min: 1200

Inj.-qty. cm<sup>3</sup>/: 0.00...3.00 "  
difference> 1000s.: -

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1200

TD-travel : -0.6...1.4 "

difference> mm: -

Shutoff

electromagnet>Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1200

Supply pump-

pressure > : -0.1...0.3 #

difference> bar: -

Shutoff

electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.

terza fermo della portata

stop (EGR set)

scarico) (ARF)

gaz d'échappement-ARF)

Spacing mm: 12.0

1st speed 1/min: 1200

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 31.0...32.0

> 1000s.: (29.0...34.0)

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 55.00...85.00

> 1000s.: (55.00...85.00)

2nd speed 1/min: 500

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 25.00...45.00

> 1000s.: (25.00...45.00)

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 70.00...110.00

> 1000s.: (70.00...110.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

KF mm: 5.6...6.0

MS mm: 1.6...2.0

FH mm: KSB 10.0

TLA-E mm: 9.0

XK mm: SPALTMAB

XL mm: A =0.8..3.0

Ya mm: 42.9...44.9

Yb mm: 36.0...44.0

Remarks:

:

:

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR
Edition : 12.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F2000R624-1
Type number : 0 460 414 123
Customer Part-No. :

Customer-specific information
Customer : FORD SWISS

Engine : 2.5L DI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 114

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery block
Piston stroke mm: 0.52
> mm: +-0.05
Outlet > : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.60...2.80
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 7.10...7.70
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 28.30...28.70 F
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
> 1000S.: 9.00...11.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.0
> 1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2200
Del. quantity cm3/
> 1000S.: 25.00...27.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (4.0)

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...65.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 1.10...1.90
> mm: (0.60...2.40)
electromagnet>Volt: 12
2nd speed 1/min: 1250
TD travel mm: 2.60...2.80
> mm: (2.10...3.30)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
TD travel mm: 5.60...6.40



> mm: (5.10...6.90)  
 Shutoff  
 electromagnet>Volt: 12  
 Supply-pump pressure characteristic:  
 1st speed 1/min: 500  
 Supply-pump pressure> bar: 5.40...6.00  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1150  
 Supply-pump pressure> bar: 6.90...7.50  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 Supply-pump pressure> bar: 7.10...7.70  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 2000  
 Supply-pump pressure> bar: 8.70...9.30  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity at overflow valve:  
 1st speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: (97.30...141.70)  
 2nd speed 1/min: 1950  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: (115.30...184.80)  
 Delivery-quant. and breakaway char.:  
 1st speed 1/min: 1950  
 HBA-stroke mm: 7.2  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 40.3...42.7 D  
 > 1000S.: (39.0...44.0) D  
 2nd speed 1/min: 2400  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...5.00  
 > 1000S.: -  
 3rd speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 9.00...15.00  
 > 1000S.: (6.00...18.00)  
 4th speed 1/min: 2200

Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 25.00...27.00  
 > 1000S.: (21.00...31.00)  
 6th speed 1/min: 1700  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 39.8...42.2  
 > 1000S.: (37.5...42.5)  
 7th speed 1/min: 1150  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 35.5...36.5 E  
 > 1000S.: (33.5...38.5) E  
 8th speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 28.30...28.70  
 > 1000S.: (25.50...31.50)

Electr. shutoff:

1st speed 1/min: 425  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 425  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 9.00...11.00  
 > 1000S.: (6.00...14.00)  
 Dispersion cm3/: 3.0  
 > 1000S.: (4.0)  
 2nd speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: (0.00...6.00)

Part-load del.at 3rd inj.-qty.  
 terza fermo della portata  
 stop (EGR set)  
 scarico) (ARF)  
 gaz d'échappement-ARF)  
 Spacing mm: 20.0

1st speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 22.00...23.00  
 > 1000S.: (20.00...25.00)

Automatic starting fuel delivery:

1st speed 1/min: 300  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 33.00...63.00  
> 1000S.: -

2nd speed 1/min: 480  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 20.00...32.00  
> 1000S.: -

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...65.00  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 2.7...2.9
KF	mm: KOT
MS	mm: 1.6...2.0
HBA stroke	mm: 7.2
Ya	mm: 41.0...44.0
Yb	mm: 63.0...75.0

Remarks:

:  
:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Always pay attention to test instructions for DISTRIBUTOR-TYPE INJECTION PUMPS FOR DI ENGINES!

Information additionally required for testing fuel-injection pump:

#### TEST PREREQUISITES

Calibrating-oil return temperature with thermometer, °C :45

Calibrating-oil inlet temperature, °C :35...40

Dwell speed, 1/min :1100

Feedback voltage, mV :-

#### SETTINGS/TEST SPECIFICATIONS FOR FUEL-INJECTION PUMP, delivery rates

Test speed, 1/min :<500

Temperature stabilisation speed 1/min :2200

Output temperature, °C :51

Measurement temperature, °C:49

Test speed, 1/min :500...799

Temperature stabilisation speed 1/min :2200

Output temperature, °C :48

Measurement temperature, °C:46

Test speed, 1/min :800...1199

Temperature stabilisation speed 1/min :2200/100

Output temperature, °C :45

Measurement temperature, °C:45

Test speed, 1/min :1200...1700

Temperature stabilisation speed 1/min :100

Output temperature, °C :42

Measurement temperature, °C:44

Test speed, 1/min :>1700

Temperature stabilisation speed 1/min :100

Output temperature, °C :41

Measurement temperature, °C:43

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F1900R653
Type number : 0 460 414 127
Customer Part-No. :

Customer-specific information
Customer : MAXION

Engine : GEMINI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 116

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.54
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600

Charge press. hPa: 1200
Setting value mm: 3.10...3.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1600
Charge press hPa: 1200
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1150
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 69.0...70.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 50.5...51.5
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 16.5...20.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 4.0
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 48.0...52.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 61.0...111.0
mind> 1000S.: 61.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300  
Charge press hPa: 1200  
TD travel mm: 0.80...1.40  
> mm: (0.50...1.70)  
electromagnet>Volt: 12  
2nd speed 1/min: 1600  
Charge press hPa: 1200  
TD travel mm: 3.10...3.30  
> mm: (2.70...3.70)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1900  
Charge press hPa: 1200  
TD travel mm: 4.60...5.20  
> mm: (4.30...5.50)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 3.70...4.30  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1300  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 6.40...7.00  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1600  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 7.30...7.90  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1900  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 8.30...8.90  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> cm<sup>3</sup>/10s: 88.80...133.30  
(73.80...148.30)  
2nd speed 1/min: 1850  
Charge press. hPa: 1200  
Shutoff

electromagnet>Volt: 12  
Overflow quantity> cm<sup>3</sup>/10s: 111.10...194.80  
(96.10...209.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700  
Charge-air pressure-setting point> hPa: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/1000s.: 65.0...66.0  
(62.5...68.5)  
2nd speed 1/min: 2430  
Charge press. hPa: 1200  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/1000s.: 0.00...3.00  
> 1000s.: -  
3rd speed 1/min: 2250  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/1000s.: 21.0...31.0  
(20.0...32.0)  
4th speed 1/min: 2100  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/1000s.: 48.00...52.00  
(45.00...55.00)  
5th speed 1/min: 1850  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/1000s.: 70.5...74.5  
(69.5...75.5)  
6th speed 1/min: 1150  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/1000s.: 69.0...70.0  
(67.0...72.0)  
7th speed 1/min: 900  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/1000s.: 70.0...75.0  
(68.5...76.5)  
8th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/1000s.: 50.5...51.5  
(48.0...54.0)

Electr. shutoff:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 16.5...20.5  
> 1000s.: (13.5...23.5)  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000s.: (5.0)

2nd speed 1/min: 315  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 33.0...41.0  
> 1000s.: (30.0...44.0)  
3rd speed 1/min: 430  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34.00...74.00  
> 1000s.: -

2nd speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 30.00...80.00  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 2.7...2.9  
KF mm: KOT  
MS1 mm: 1.3...1.6  
Ya mm: 44.0...48.0  
Yb mm: 50.5...61.5

Remarks:

⋮  
⋮

Ya = Distance between VE flange and

speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 01.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1175R533
Type number : 0 460 424 098
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : TD 226-B4 DI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Setting value mm: 4.20...4.60
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 800
Setting value bar: 6.70...7.30
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 800
Del. quantity cm3/
> 1000S.: 76.8...77.8
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 275
Del. quantity cm3/
> 1000S.: 7.0...13.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1175
Del. quantity cm3/
> 1000S.: 50.0...56.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 99.0...101.0
mind> 1000S.: 99.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1.6...2.4
> mm: (1.3...2.7)
electromagnet>Volt: 12
2nd speed 1/min: 900
TD travel mm: 4.7...5.5
> mm: (4.4...5.8)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 800
TD travel mm: 4.2...4.6

> mm: (3.7...5.1)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
 Supply-pump pressure> bar: 5.4...6.0  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 800  
 Supply-pump pressure> bar: 6.7...7.3  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1100  
 Supply-pump pressure> bar: 7.6...8.2  
 Shutoff  
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: (87.7...157.2)  
 2nd speed 1/min: 1100  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: (96.1...181.6)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 2nd speed 1/min: 1250  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.0...15.0  
 > 1000S.: -  
 3rd speed 1/min: 1200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 15.00...45.00  
 > 1000S.: -  
 4th speed 1/min: 1175  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 50.0...56.0  
 > 1000S.: (44.5...61.5)  
 5th speed 1/min: 1100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 71.5...74.5

> 1000S.: (70.0...76.0)

6th speed 1/min: 800  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 76.8...77.8  
 > 1000S.: (74.8...79.8)

7th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 72.0...78.0  
 > 1000S.: (69.5...80.5)

8th speed 1/min: 400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 69.0...75.0  
 > 1000S.: (68.0...76.0)

Mech. shutoff:

1st speed 1/min: 1100  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 275  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 275  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 7.00...13.00  
 > 1000S.: (3.50...16.50)  
 Dispersion cm3/: 3.5  
 > 1000S.: (6.5)  
 2nd speed 1/min: 350  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 60.00...90.00  
 > 1000S.: -

2nd speed 1/min: 150  
 Shutoff  
 electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 90.00...140.00  
> 1000s.: -

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 99.0...101.0 V  
> 1000s.: (92.0...108.0) V

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.5...3.8

KF mm: KOT

MS1 mm: 0.9...1.3

SVS max. mm: 1.6

Ya mm: 41.4...45.4

Yb mm: 40.2...45.8

Remarks:

:  
:

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Starting delivery check

V = Speed-control lever in full-load  
position



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN  
Edition : 01.03.96  
replaces : 10.06.94  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1150R587  
Type number : 0 460 424 105  
Customer Part-No. :

Customer-specific information  
Customer : MAN

Engine : "DI" 0824 LUE 521

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 110

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900  
Charge press. hPa: 1000  
Setting value mm: 1.80...2.20  
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 900  
Charge press hPa: 1000  
Setting value bar: 6.70...7.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 112.5...113.5  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 450  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 63.00...64.00  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 18.00...22.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 6.0  
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1250  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 67.00...73.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/: 90.00...150.00  
mind> 1000S.: 90.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 2.40...3.20  
> mm: (2.10...3.50)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 900  
Charge press hPa: 1000  
TD travel mm: 1.80...2.20  
> mm: (1.30...2.70)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 800  
Charge press hPa: 1000  
TD travel mm: 0.80...1.60  
> mm: (0.50...1.90)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 450  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 4.70...5.30  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 900  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 6.70...7.30  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 7.10...7.70  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 450  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm<sup>3</sup>/10s: (26.70...101.10)  
2nd speed 1/min: 1150  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 450  
Charge-air pressure-setting point> hPa: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 99.0...100.0  
> 1000s.: (96.0...103.0)  
2nd speed 1/min: 1350  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
3rd speed 1/min: 1320  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...15.00  
> 1000s.: (0.00...15.00)  
4th speed 1/min: 1290  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 15.00...55.00  
> 1000s.: (15.00...55.00)  
5th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 67.00...73.00  
> 1000s.: (61.50...78.50)  
9th speed 1/min: 1150  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 98.00...103.00  
> 1000s.: (96.50...104.50)  
10th speed 1/min: 1000  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 102.5...107.5  
> 1000s.: (101.0...109.0)  
12th speed 1/min: 800  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 112.50...113.50  
> 1000s.: (100.50...115.50)  
18th speed 1/min: 450  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 63.00...64.00  
> 1000s.: (60.50...66.50)  
20th speed 1/min: 450  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 115.50...124.50

> 1000S.: (114.00...126.00)

Mech. shutoff:

1st speed 1/min: 1150  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
KSB/AFB  
valve > Volt: 12

Electr. shutoff:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 18.00...22.00  
> 1000S.: (13.50...26.50)  
Dispersion cm<sup>3</sup>/: 6.0  
> 1000S.: (6.5)  
2nd speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 170  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 90.00...150.00  
> 1000S.: -

2nd speed 1/min: 220  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 30.00...90.00  
> 1000S.: -

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 90.00...150.00  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS1	mm: 1.0...1.3
SVS max.	mm: 3.2
Ya	mm: 41.8...44.8
Yb	mm: 38.0...43.8

Remarks:

: MAN - NR.7270

Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Pump with slave plunger

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 29.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1150R609
Type number : 0 460 424 107
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0824LUE 522

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 950
Charge press. hPa: 1000
Setting value mm: 1.7...2.1
AFB/AFB

valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 950
Charge press hPa: 1000
Setting value bar: 6.90...7.50
KSB/AFB

valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 96.5...97.5

KSB/AFB
valve > Volt: 12
Shutoff

electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 65.5...66.5

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

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Low-idle speed regulation

Speed 1/min: 375
Charge press hPa: -
Del. quantity cm3/
> 1000S.: 16.0...20.0

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1250
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 59.0...65.0

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 90.00...150.00  
mind> 1000S.: 90.00  
KSB/AFB  
Valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 850  
Charge press hPa: 1000  
TD travel mm: 0.6...1.4  
> mm: (0.3...1.7)  
KSB/AFB  
valve > Volt: 12  
electromagnet>Volt: 12  
2nd speed 1/min: 950  
Charge press hPa: 1000  
TD travel mm: 1.7...2.1  
> mm: (1.2...2.6)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1050  
Charge press hPa: 1000  
TD travel mm: 2.30...3.10  
> mm: (2.00...3.40)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.9...5.5  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 950  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.9...7.5  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1150

Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.7...8.3  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm3/10s: 26.7...101.1)  
2nd speed 1/min: 1150  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500  
Charge-air pressure-setting  
point> hPa: 300  
LDA-stroke mm: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 87.5...88.5  
> 1000S.: (84.5...91.5)  
2nd speed 1/min: 1350  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: -  
3rd speed 1/min: 1300  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 1.0...31.0  
> 1000S.: (0.0...32.0)  
4th speed 1/min: 1250  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12

Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 59.0...65.0  
 > 1000S.: (53.5...70.5)  
 5th speed 1/min: 1150  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 89.5...94.5  
 > 1000S.: (88.0...96.0)  
 6th speed 1/min: 900  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 96.5...97.5  
 > 1000S.: (94.5...99.5)  
 7th speed 1/min: 750  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 101.0...106.0  
 > 1000S.: (99.5...107.5)  
 8th speed 1/min: 500  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 98.0...107.0  
 > 1000S.: (96.5...108.5)  
 9th speed 1/min: 500  
 Charge press. hPa: -  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 65.5...66.5  
 > 1000S.: (63.0...69.0)  
 10th speed 1/min: 900  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 96.5...97.5  
 > 1000S.: (94.5...99.5)

Mech. shutoff:

1st speed 1/min: 1150  
 Charge press. hPa: 1000  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

K02

Shutoff  
 electromagnet>volt: 12  
 KSB/AFB  
 valve > Volt: 12  
 Electr. shutoff:  
 1st speed 1/min: 375  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -  
 KSB/AFB  
 valve > Volt: 12

Idle delivery:

1st speed 1/min: 375  
 >KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 16.0...20.0  
 > 1000S.: (11.5...24.5)  
 Dispersion cm3/: 6.0  
 > 1000S.: (6.5)  
 2nd speed 1/min: 500  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 170  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 90.00...150.00  
 > 1000S.: -  
 2nd speed 1/min: 220  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 30.00...90.00  
 > 1000S.: -  
 4th speed 1/min: 100  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 90.00...150.00  
 > 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: 6.2...6.6

MS1 mm: 1.1...1.4

SVS max. mm: 3.8

FH mm: KSB=7.1MM

Ya mm: 42.3...44.3

Yb mm: 38.0...43.8

Remarks:

:  
:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN  
Edition : 29.02.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1150R625  
Type number : 0 460 424 112  
Customer Part-No. :

Customer-specific information  
Customer : MAN

Engine : D 0824LUE 523

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 110

Opening  
Pressure> bar: 247.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900  
Charge press. hPa: 1000  
Setting value mm: 2.0...2.4  
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 900  
Charge press hPa: 1000  
Setting value bar: 6.70...7.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 84.5...85.5  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 450  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 73.5...74.5  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 13.0...17.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 6.0  
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1250  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 53.0...59.0  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/: 90.00...150.00  
mind> 1000S.: 90.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses



Timing-device characteristic:

1st speed 1/min: 800  
Charge press hPa: 1000  
TD travel mm: 1.0...1.8  
> mm: (0.7...2.1)  
electromagnet>Volt: 12  
2nd speed 1/min: 900  
Charge press hPa: 1000  
TD travel mm: 2.0...2.4  
> mm: (1.5...2.9)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 2.60...3.40  
> mm: (2.30...3.70)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 450  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 4.7...5.3  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 900  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 6.7...7.3  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1150  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 7.7...8.3  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> cm3/10s: 41.70...86.10  
(26.7...101.1)  
2nd speed 1/min: 1150  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> cm3/10s: 55.60...139.00  
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 450  
Charge-air pressure-setting point> hPa: 300  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 73.5...74.5  
> 1000S.: (70.5...77.5)  
2nd speed 1/min: 1350  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: -  
3rd speed 1/min: 1320  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.0...15.0  
> 1000S.: -  
4th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 53.0...59.0  
> 1000S.: (47.5...64.5)  
5th speed 1/min: 1220  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 65.0...85.0  
> 1000S.: -  
6th speed 1/min: 1150  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 80.0...85.0  
> 1000S.: (78.5...86.5)  
7th speed 1/min: 1000  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 82.0...87.0  
> 1000S.: (80.5...88.5)  
8th speed 1/min: 450  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 78.0...87.0  
> 1000S.: (76.5...88.5)  
9th speed 1/min: 450  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 60.0...61.0  
> 1000S.: (57.5...63.5)  
10th speed 1/min: 900  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 84.5...85.5  
> 1000S.: (82.5...87.5)

Mech. shutoff:

1st speed 1/min: 1150  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 13.0...17.0  
> 1000S.: (8.5...21.5)  
Dispersion cm<sup>3</sup>/: 6.0  
> 1000S.: (6.5)  
2nd speed 1/min: 420  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 95.00...155.00  
> 1000S.: -

2nd speed 1/min: 220  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 30.00...90.00  
> 1000S.: -

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 90.00...150.00  
> 1000S.: -

Shutoff electromagnet:

Cut-in

K06

>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS1	mm: 1.1...1.4
SVS max.	mm: 2.7
FH	mm: KSB=7.1MM
Ya	mm: 41.8...44.8
Yb	mm: 38.1...43.9

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Pump with slave plunger

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CASE  
Edition : 25.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1200R645  
Type number : 0 460 424 120  
Customer Part-No. : 191 963 A1

Customer-specific information  
Customer : CASE

Engine : DT 268/4240

Power KW: 74

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 020

Opening  
Pressure> bar: 169.00...175.00

Perforated-plate  
diameter> mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800  
Setting value mm: 2.2...2.6

Supply-pump pressure

Speed 1/min: 800  
Setting value bar: 5.80...6.40

Full-load del. w/out charge press.:

Speed 1/min: 800  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 103.5...104.5  
Dispersion cm<sup>3</sup>/: 3.5  
> 1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 375  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 18.0...22.0  
Del. quantity cm<sup>3</sup>/: 3.0  
> 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1265  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 73.0...77.0

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 110.0...160.0  
mind> 1000S.: 110.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 0.7...1.5  
> mm: (0.4...1.8)  
2nd speed 1/min: 800  
TD travel mm: 2.2...2.6  
> mm: (1.7...3.1)  
3rd speed 1/min: 1050  
TD travel mm: 4.10...4.90  
> mm: (3.80...5.20)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure> bar: 4.4...5.0  
2nd speed 1/min: 800  
Supply-pump  
pressure> bar: 5.8...6.4  
3rd speed 1/min: 1050  
Supply-pump  
pressure> bar: 6.8...7.4

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 40.2...81.4  
quantity> cm<sup>3</sup>/10s: (25.2...96.4)  
2nd speed 1/min: 1150  
Overflow : 41.6...125.0  
quantity> cm<sup>3</sup>/10s: (26.6...140.0)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1375  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: -  
2nd speed 1/min: 1300  
Del. quantity cm<sup>3</sup>/: 28.0...58.0  
> 1000s.: -  
3rd speed 1/min: 1265  
Del. quantity cm<sup>3</sup>/: 73.0...77.0  
> 1000s.: (67.0...83.0)  
4th speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/: 105.0...108.5  
> 1000s.: (100.0...110.0)  
5th speed 1/min: 800  
Del. quantity cm<sup>3</sup>/: 103.5...104.5  
> 1000s.: (101.5...106.5)  
6th speed 1/min: 500  
Del. quantity cm<sup>3</sup>/: 84.0...91.0  
> 1000s.: (82.5...92.5)

Mech. shutoff:

1st speed 1/min: 1200  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000s.: -

Idle delivery:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 18.0...22.0  
> 1000s.: (15.5...24.5)  
Dispersion cm<sup>3</sup>/: 3.0  
> 1000s.: (3.5)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 220  
Del. quantity cm<sup>3</sup>/: 67.0...87.0  
> 1000s.: -  
2nd speed 1/min: 160  
Del. quantity cm<sup>3</sup>/: 120.0...170.0  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: -  
MS1 mm: 1.3...1.6  
SVS max. mm: 2.4  
Ya mm: 36.2...40.2  
Yb mm: 53.2...61.2

Remarks:

:  
:  
Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end  
Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
Edition : 25.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1400R646  
Type number : 0 460 424 121  
Customer Part-No. : 3 282 812

Customer-specific information  
Customer : CDC

Engine : 4 BTAA 3.9

Power KW: 97  
Speed 1/min: 2800

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 247.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: 0.3  
> (from BDC): ±0.02(0.04)

Start of delivery block  
Piston stroke mm: 1.95  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 950  
Charge press. hPa: 1000  
Setting value mm: 1.5...1.9  
Shutoff  
electromagnet>Volt: 24

## Supply-pump pressure

Speed 1/min: 950  
Charge press hPa: 1000  
Setting value bar: 5.90...6.50  
Shutoff  
electromagnet>Volt: 24

## Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 76.5...77.5  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000S.: (4.5)

## Full-load del. w/out charge press.:

Speed 1/min: 550  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 44.5...45.5  
Shutoff  
electromagnet>Volt: 24

## Low-idle speed regulation

Speed 1/min: 400  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.5...9.5  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)

## Full-load speed regulation

Speed 1/min: 1500  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 42.0...48.0  
Shutoff  
electromagnet>Volt: 24

## Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 75.0...145.0  
mind> 1000S.: 75.0  
Shutoff

electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950  
Charge press hPa: 1000  
TD travel mm: 1.5...1.9  
> mm: (1.0...2.4)

electromagnet>Volt: 24  
2nd speed 1/min: 1100  
Charge press hPa: 1000  
TD travel mm: 2.2...3.0  
> mm: (1.9...3.3)

Shutoff  
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 550  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 4.0...4.6  
Shutoff

electromagnet>Volt: 24  
2nd speed 1/min: 950  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 5.9...6.5  
Shutoff

electromagnet>Volt: 24  
3rd speed 1/min: 1400  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 7.8...8.4  
Shutoff

electromagnet>Volt: 24

Overlow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Overflow quantity> cm<sup>3</sup>/10s: (33.3...77.7)

2nd speed 1/min: 1400  
Charge press. hPa: 1000  
Shutoff

electromagnet>Volt: 24  
Overflow quantity> cm<sup>3</sup>/10s: (50.0...105.5)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700  
Charge-air pressure-setting

point> hPa: 500

Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 62.0...63.0  
> 1000s.: (58.0...67.0)

2nd speed 1/min: 1625  
Charge press. hPa: 1000  
Shutoff

electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: -

3rd speed 1/min: 1550  
Charge press. hPa: 1000  
Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 9.0...39.0  
> 1000s.: -

4th speed 1/min: 1500  
Charge press. hPa: 1000  
Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 42.0...48.0  
> 1000s.: (39.0...51.0)

5th speed 1/min: 1400  
Charge press. hPa: 1000  
Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 68.5...71.5  
> 1000s.: (66.5...73.5)

6th speed 1/min: 750  
Charge press. hPa: 1000  
Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 76.5...77.5  
> 1000s.: (73.5...80.5)

7th speed 1/min: 550  
Charge press. hPa: -  
Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 44.5...45.5  
> 1000s.: (41.0...49.0)

Mech. shutoff:

1st speed 1/min: 1400  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000s.: -

Shutoff  
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 400  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000s.: -

Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 7.5...9.5  
> 1000S.: (3.0...14.0)  
Dispersion cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)  
2nd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...4.00  
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 40.0...90.0  
> 1000S.: -  
2nd speed 1/min: 230  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 75.00...125.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: -
MS1	mm: 1.3...1.6
Ya	mm: 34.8...38.8
Yb	mm: 41.8...47.2

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 25.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1200R636-1
Type number : O 460 424 123
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0824 LFL 05

Power KW: 114

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1500

Setting value mm: 1.9...2.3
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1500
Setting value bar: 7.00...7.60
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1500
Del. quantity cm3/
> 1000s.: 109.5...110.5
Shutoff
electromagnet>Volt: 24
Dispersion cm3/: 4.0
> 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
> 1000s.: 62.0...63.0
Shutoff
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000s.: 12.5...16.5
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 6.0
> 1000s.: (6.5)

Full-load speed regulation

Speed 1/min: 1340
Charge press hPa: 1500
Del. quantity cm3/
> 1000s.: 73.0...77.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 90.0...130.0
mind> 1000s.: 90.0
Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses



Timing-device characteristic:

1st speed 1/min: 800  
Charge press hPa: 1500  
TD travel mm: 0.6...1.4  
> mm: (0.3...1.7)  
electromagnet>Volt: 24  
2nd speed 1/min: 900  
Charge press hPa: 1500  
TD travel mm: 1.9...2.3  
> mm: (1.4...2.8)  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1050  
Charge press hPa: 1500  
TD travel mm: 3.5...4.3  
> mm: (3.2...4.6)  
Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 1200  
Charge press hPa: 1500  
TD travel mm: 4.5...5.3  
> mm: -  
Shutoff  
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 550  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 5.2...5.8  
Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 900  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 7.0...7.6  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1200  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 8.6...9.2  
Shutoff  
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Overflow : 41.7...86.1  
quantity> cm<sup>3</sup>/10s: (26.7...101.1)  
2nd speed 1/min: 1200  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24

Overflow : 55.5...138.8  
quantity> cm<sup>3</sup>/10s: (40.5...153.8)

Delivery-quant. and breakaway char.:

1st speed 1/min: 550  
Charge-air pressure-setting  
point> hPa: 500  
LDA-stroke mm: 7.8  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 98.5...99.5  
> 1000S.: (96.0...102.0)  
2nd speed 1/min: 1470  
Charge press. hPa: 1500  
Shutoff  
electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: -  
3rd speed 1/min: 1420  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.0...15.0  
> 1000S.: -  
4th speed 1/min: 1380  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 15.0...45.0  
> 1000S.: -  
5th speed 1/min: 1340  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 73.0...77.0  
> 1000S.: (67.0...83.0)  
6th speed 1/min: 1200  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 102.5...107.5  
> 1000S.: (101.0...109.0)  
7th speed 1/min: 1000  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 109.5...110.5  
> 1000S.: (107.5...112.5)  
8th speed 1/min: 700  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 114.5...119.5  
> 1000S.: (113.0...121.0)  
9th speed 1/min: 550  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24

Del. quantity cm<sup>3</sup>/: 117.0...126.0  
> 1000S.: (115.5...127.5)  
10th speed 1/min: 550  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 62.0...63.0  
> 1000S.: (59.5...65.5)

Electr. shutoff:

1st speed 1/min: 400  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 12.5...16.5  
> 1000S.: (9.5...19.5)  
Dispersion cm<sup>3</sup>/: 6.0  
> 1000S.: (6.5)  
2nd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 10.0...50.0  
> 1000S.: -

2nd speed 1/min: 150  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 80.00...140.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: -

MS mm: 1.1...1.4  
LDA stroke mm: 7.8  
Ya mm: 37.4...40.4  
Yb mm: 41.9...47.1

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOFIM
Edition : 25.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1800R657
Type number : 0 460 424 124
Customer Part-No. :

Customer-specific information
Customer : IVECO SOFIM

Engine : 8140.23.3700

Power KW: 77

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value mm: 0.7...0.9

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1200
Setting value bar: 6.50...7.10
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 57.0...58.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 28.0...29.0
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 6.00...10.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2000
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 40.0...46.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 55.0...100.0
mind> 1000S.: 55.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100  
Charge press hPa: 1200  
TD travel mm: 0.7...0.9  
> mm: (0.1...1.5)  
electromagnet>Volt: 12  
2nd speed 1/min: 1400  
Charge press hPa: 1200  
TD travel mm: 2.5...3.3  
> mm: (2.2...3.6)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1800  
Charge press hPa: 1200  
TD travel mm: 4.60...5.20  
> mm: (4.20...5.60)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1200  
Supply-pump  
pressure> bar: 4.0...4.6  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1100  
Charge press. hPa: 1200  
Supply-pump  
pressure> bar: 6.5...7.1  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1800  
Charge press. hPa: 1200  
Supply-pump  
pressure> bar: 9.0...9.6  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Overflow : 75.0...119.4  
quantity> cm3/10s: (60.0...134.4)  
2nd speed 1/min: 1800  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Overflow : 97.2...180.5  
quantity> cm3/10s: (82.2...195.5)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750

Charge-air pressure-setting  
point> hPa: 500  
LDA-stroke mm: 6.7  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.5...46.5  
> 1000s.: (42.5...49.5)  
2nd speed 1/min: 2200  
Charge press. hPa: 1200  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...4.00  
> 1000s.: -  
3rd speed 1/min: 2100  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 16.0...26.0  
> 1000s.: (14.0...28.0)  
4th speed 1/min: 2000  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 40.0...46.0  
> 1000s.: (38.5...47.5)  
5th speed 1/min: 1800  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 58.0...62.0  
> 1000s.: (56.5...63.5)  
6th speed 1/min: 1400  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 56.5...63.5  
> 1000s.: -  
7th speed 1/min: 1100  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.5...44.5  
> 1000s.: -  
8th speed 1/min: 1100  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 57.0...58.0  
> 1000s.: (54.0...61.0)  
9th speed 1/min: 550  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 28.0...29.0  
> 1000s.: (25.0...32.0)

Electr. shutoff:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 6.0...10.0  
> 1000S.: (4.0...12.0)  
Dispersion cm<sup>3</sup>/: 6.0  
> 1000S.: (6.5)  
2nd speed 1/min: 425  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -  
3rd speed 1/min: 320  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.00...18.0  
> 1000S.: (7.00...19.0)

Automatic starting fuel delivery:

1st speed 1/min: 510  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 22.0...32.0  
> 1000S.: -  
2nd speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 75.0...105  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.5...3.7
KF	mm: -
MS1	mm: 1.3...1.6
LDA stroke	mm: 6.7
Ya	mm: 33.0...35.0
Yb	mm: 44.0...50.0

Remarks:

:  
:

Ya = Distance between VE flange and

speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOFIM
Edition : 25.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1800R660
Type number : 0 460 424 125
Customer Part-No. :

Customer-specific information
Customer : IVECO SOFIM

Engine : 8140.43.3700

Power KW: 86

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value mm: 1.5...1.7

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1200
Setting value bar: 6.70...7.30
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 62.5...63.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 33.5...34.5
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
> 1000S.: 5.00...9.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2000
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 40.0...46.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.0...90.0
mind> 1000S.: 60.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100  
Charge press hPa: 1200  
TD travel mm: 1.5...1.7  
> mm: (0.9...2.3)  
electromagnet>Volt: 12  
2nd speed 1/min: 1400  
Charge press hPa: 1200  
TD travel mm: 2.5...3.3  
> mm: (2.1...3.5)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1600  
Charge press hPa: 1200  
TD travel mm: 3.50...4.10  
> mm: (3.10...4.50)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 5.1...5.7  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1100  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 6.7...7.3  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1800  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 8.5...9.1  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> : 75.0...119.4  
cm3/10s: (60.0...134.4)  
2nd speed 1/min: 1800  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> : 97.2...180.5  
cm3/10s: (82.2...195.5)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800

Charge-air pressure-setting point> hPa: 500  
LDA-stroke mm: 7.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 53.5...54.5  
> 1000s.: (50.5...57.5)  
2nd speed 1/min: 2200  
Charge press. hPa: 1200  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...4.00  
> 1000s.: -  
3rd speed 1/min: 2100  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 16.0...26.0  
> 1000s.: (14.0...28.0)  
4th speed 1/min: 2000  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 40.0...46.0  
> 1000s.: (38.5...47.5)  
5th speed 1/min: 1800  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 61.0...65.0  
> 1000s.: (59.5...66.5)  
6th speed 1/min: 1400  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 59.5...64.5  
> 1000s.: -  
7th speed 1/min: 1750  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 62.5...63.5  
> 1000s.: (59.5...66.5)  
8th speed 1/min: 950  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 59.0...64.0  
> 1000s.: -  
9th speed 1/min: 600  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 65.0...69.0  
> 1000s.: (61.5...72.5)  
10th speed 1/min: 550  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 33.5...34.5

> 1000S.: (30.5...37.5)

Electr. shutoff:

1st speed 1/min: 325  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 375  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 5.0...9.0  
> 1000S.: (3.0...11.0)  
Dispersion cm<sup>3</sup>/: 6.0  
> 1000S.: (6.5)  
2nd speed 1/min: 425  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -  
3rd speed 1/min: 275  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34.0...50.0  
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 29.0...35.0  
> 1000S.: -

2nd speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 75.0...105.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.5...3.7  
KF mm: -  
MS1 mm: 1.4...1.7  
LDA stroke mm: 7.0  
FH mm: KSB 5.7MM

K20

Ya mm: 33.0...35.0  
Yb mm: 44.0...50.0

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1300R661
Type number : 0 460 424 126
Customer Part-No. :

Customer-specific information
Customer : CUMMINS
Engine : 4 BT F4000-EURO1

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.2
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1200
Setting value mm: 2.5...2.7
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1200
Setting value bar: 7.20...7.80
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 96.0...97.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 5.0
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 55.5...57.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 5.0
> 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 380
Del. quantity cm3/
> 1000S.: 13.0...17.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 5.5
> 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 61.0...67.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 125.0...175.0
mind> 1000S.: 125.0
Shutoff

electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 700  
Charge press hPa: 1200  
TD travel mm: 2.3...3.3  
> mm: (2.1...3.5)

electromagnet>Volt: 12  
2nd speed 1/min: 1050  
Charge press hPa: 1200  
TD travel mm: 0.9...1.5  
> mm: (0.6...1.8)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
Charge press hPa: 1200  
TD travel mm: 2.50...2.70  
> mm: (2.10...3.10)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1400  
Charge press hPa: 1200  
TD travel mm: 3.0...3.6  
> mm: (2.7...3.9)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 4.0...4.6

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1050  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 6.2...6.8

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 7.2...7.8

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1400  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 7.9...8.5

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow : 40.2...81.4  
quantity> cm<sup>3</sup>/10s: (25.2...96.4)  
2nd speed 1/min: 1300  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.6...125.0  
quantity> cm<sup>3</sup>/10s: (26.6...140.0)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700  
Charge-air pressure-setting point> hPa: 500  
LDA-stroke mm: -  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 83.0...84.0  
> 1000s.: (79.5...87.5)  
2nd speed 1/min: 1650  
Charge press. hPa: 1200  
Shutoff

electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: -  
3rd speed 1/min: 1580  
Charge press. hPa: 1200  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 25.0...39.0  
> 1000s.: (17.0...47.0)  
4th speed 1/min: 1500  
Charge press. hPa: 1200  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 61.0...67.0  
> 1000s.: (58.0...70.0)  
5th speed 1/min: 1300  
Charge press. hPa: 1200  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 89.5...94.5  
> 1000s.: (88.0...96.0)  
6th speed 1/min: 1050  
Charge press. hPa: 1200  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 92.0...97.0  
> 1000s.: (90.5...98.5)  
7th speed 1/min: 800  
Charge press. hPa: 1200  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 96.0...97.0  
> 1000s.: (93.5...99.5)

8th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 55.5...57.5  
> 1000S.: (51.5...60.5)

Mech. shutoff:

1st speed 1/min: 1300  
Charge press. hPa: 1200  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -

Shutoff  
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 400  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 13.0...17.0  
> 1000S.: (10.0...20.0)

Dispersion cm<sup>3</sup>/: 7.0  
> 1000S.: (7.0)

2nd speed 1/min: 480

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: -

3rd speed 1/min: 250

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.0...45.0  
> 1000S.: (34.0...46.0)

Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.0...75.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8  
MS1 mm: 1.4...1.7  
Ya mm: 35.0...39.0  
Yb mm: 41.9...47.1

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAXION  
Edition : 22.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1400R664  
Type number : 0 460 424 127  
Customer Part-No. :

Customer-specific information  
Customer : MAXION

Engine : S4 EURO 1

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1240  
Setting value mm: 1.8...2.0  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1240  
Setting value bar: 7.70...8.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 850  
Del. quantity cm3/  
> 1000S.: 69.5...70.5  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 380  
Del. quantity cm3/  
> 1000S.: 13.0...17.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.5  
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1550  
Del. quantity cm3/  
> 1000S.: 39.0...45.0  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 100.0...140.00  
mind> 1000S.: 100.0  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1120  
TD travel mm: 0.9...1.5  
> mm: (0.6...1.8)  
electromagnet>Volt: 12  
2nd speed 1/min: 1240  
TD travel mm: 1.8...2.0  
> mm: (1.4...2.4)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1400  
TD travel mm: 1.80...2.40

> mm: (1.50...2.70)  
Shutoff  
electromagnet>Volt: 12  
Supply-pump pressure characteristic:  
1st speed 1/min: 500  
Supply-pump  
pressure> bar: 4.3...4.9  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1120  
Supply-pump  
pressure> bar: 7.2...7.8  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1240  
Supply-pump  
pressure> bar: 7.7...8.3  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1400  
Supply-pump  
pressure> bar: 8.5...9.1  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 38.8...79.6  
quantity> cm<sup>3</sup>/10s: (23.8...94.6)  
2nd speed 1/min: 1350  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.6...125.0  
quantity> cm<sup>3</sup>/10s: (26.6...140.0)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1730  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000s.: -  
2nd speed 1/min: 1650  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 13.0...27.0  
> 1000s.: (10.0...30.0)  
3rd speed 1/min: 1550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 39.0...45.0  
> 1000s.: (36.0...48.0)  
4th speed 1/min: 1350  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 65.5...69.5  
> 1000s.: (64.0...71.0)  
5th speed 1/min: 850  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 69.5...70.5  
> 1000s.: (67.0...73.0)  
6th speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 60.0...66.0  
> 1000s.: (58.0...68.0)

Electr. shutoff:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 13.0...17.0  
> 1000s.: (11.0...19.0)  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000s.: (5.0)  
2nd speed 1/min: 300  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.0...53.0  
> 1000s.: (43.0...55.0)  
3rd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...6.00  
> 1000s.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.0...85.0  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: -
MS1	mm: 1.4...1.7
Ya	mm: 33.0...35.0
Yb	mm: 42.8...51.2

Remarks:

⋮

Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 14.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1400R666
Type number : 0 460 424 128
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : 4.10 NA VW7100

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.0
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1150
Setting value mm: 1.9...2.1
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1150
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 850
Del. quantity cm3/
> 1000S.: 69.5...70.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000S.: 17.5...21.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1550
Del. quantity cm3/
> 1000S.: 44.0...50.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 75.0...115.00
mind> 1000S.: 75.0
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 0.7...1.3
> mm: (0.4...1.6)
electromagnet>Volt: 12
2nd speed 1/min: 1150
TD travel mm: 1.9...2.1
> mm: (1.5...2.5)

Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1400  
 TD travel mm: 3.20...3.80  
 > mm: (2.90...4.10)  
 Shutoff  
 electromagnet>Volt: 12  
  
 Supply-pump pressure characteristic:  
  
 1st speed 1/min: 500  
 Supply-pump  
 pressure> bar: 4.4...5.0  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1000  
 Supply-pump  
 pressure> bar: 6.7...7.3  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1150  
 Supply-pump  
 pressure> bar: 7.3...7.9  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1400  
 Supply-pump  
 pressure> bar: 8.4...9.0  
 Shutoff  
 electromagnet>Volt: 12  
  
 Overflow quantity at overflow valve:  
  
 1st speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 40.2...81.4  
 quantity> cm3/10s: (25.2...96.4)  
 2nd speed 1/min: 1400  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.6...125.0  
 quantity> cm3/10s: (26.6...140.0)  
  
 Delivery-quant. and breakaway char.:  
  
 1st speed 1/min: 1730  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.0...3.0  
 > 1000S.: -  
 2nd speed 1/min: 1650  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 13.0...27.0  
 > 1000S.: (10.0...30.0)  
 3rd speed 1/min: 1550  
 Shutoff  
 electromagnet>Volt: 12

Del. quantity cm3/: 44.0...50.0  
 > 1000S.: (41.0...53.0)  
 4th speed 1/min: 1400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 68.0...72.0  
 > 1000S.: (66.5...73.5)  
 5th speed 1/min: 850  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 69.5...70.5  
 > 1000S.: (67.0...73.0)  
 6th speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 53.0...59.0  
 > 1000S.: (51.0...61.0)

Electr. shutoff:

1st speed 1/min: 400  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.5...21.5  
 > 1000S.: (15.5...23.5)  
 Dispersion cm3/: 4.0  
 > 1000S.: (5.0)  
 2nd speed 1/min: 320  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 43.0...51.0  
 > 1000S.: (41.0...53.0)  
 3rd speed 1/min: 480  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 35.0...75.0  
 > 1000S.: -

Shutoff electromagnet:

Cut-in



>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: -
MS1	mm: 1.4...1.7
Ya	mm: 37.3...39.3
Yb	mm: 34.0...44.7

Remarks:

:  
:  
:

Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM  
Edition : 14.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1500R667  
Type number : 0 460 424 129  
Customer Part-No. :

Customer-specific information  
Customer : MWM

Engine : 4.10 NA F1000

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 1.0  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1150  
Setting value mm: 1.9...2.1  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1150  
Setting value bar: 7.30...7.90  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 850  
Del. quantity cm3/  
> 1000s.: 69.5...70.5  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 400  
Del. quantity cm3/  
> 1000s.: 15.5...19.5  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.5  
> 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1670  
Del. quantity cm3/  
> 1000s.: 42.0...48.0  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 75.0...115.00  
mind> 1000s.: 75.0  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000  
TD travel mm: 0.7...1.3  
> mm: (0.4...1.6)  
electromagnet>Volt: 12  
2nd speed 1/min: 1150  
TD travel mm: 1.9...2.1  
> mm: (1.5...2.5)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1400  
TD travel mm: 3.20...3.80  
> mm: (2.90...4.10)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure> bar: 4.4...5.0  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Supply-pump  
pressure> bar: 6.7...7.3  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1150  
Supply-pump  
pressure> bar: 7.3...7.9  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1400  
Supply-pump  
pressure> bar: 8.4...9.0  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 40.2...81.4  
quantity> cm<sup>3</sup>/10s: (25.2...96.4)  
2nd speed 1/min: 1500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.6...125.0  
quantity> cm<sup>3</sup>/10s: (26.6...140.0)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1840  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -  
2nd speed 1/min: 1780  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 12.0...26.0  
> 1000S.: (9.0...29.0)  
3rd speed 1/min: 1500  
Shutoff  
electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 67.0...71.0  
> 1000S.: (65.5...72.5)  
4th speed 1/min: 850  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 69.5...70.5  
> 1000S.: (67.0...73.0)  
5th speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 53.0...59.0  
> 1000S.: (51.0...61.0)

Electr. shutoff:

1st speed 1/min: 400  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 15.5...19.5  
> 1000S.: (13.5...21.5)  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000S.: (5.0)  
2nd speed 1/min: 290  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 23.0...31.0  
> 1000S.: (21.0...33.0)  
3rd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...6.00  
> 1000S.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.0...75.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: -
MS1	mm: 1.4...1.7
Ya	mm: 39.0...41.0
Yb	mm: 40.8...49.2

Remarks:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM  
Edition : 14.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1500R668  
Type number : 0 460 424 130  
Customer Part-No. :

Customer-specific information  
Customer : MWM

Engine : 4.10 T EURO IF 1000T

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200  
Charge press. hPa: 1200  
Setting value mm: 3.1...3.3  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200  
Charge press hPa: 1200  
Setting value bar: 7.30...7.90  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850  
Charge press. hPa: 1200  
Del. quantity cm3/  
> 1000S.: 91.5...92.5  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 49.5...53.5  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 390  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 5.0...9.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.5  
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1650  
Charge press hPa: 1200  
Del. quantity cm3/  
> 1000S.: 67.0...73.0  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 63.00...103.00  
mind> 1000S.: 63.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000

Charge press hPa: 1200  
TD travel mm: 1.1...1.7  
> mm: (0.8...2.0)  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press hPa: 1200  
TD travel mm: 3.1...3.3  
> mm: (2.7...3.7)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1400  
Charge press hPa: 1200  
TD travel mm: 4.60...5.20  
> mm: (4.30...5.50)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 4.2...4.8  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 6.5...7.1  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 7.3...7.9  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1400  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 8.1...8.7  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow : 40.2...81.4  
quantity> cm3/10s: (25.2...96.4)  
2nd speed 1/min: 1450  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Overflow : 36.10...119.40  
quantity> cm3/10s: (21.10...134.40)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700  
Charge-air pressure-setting point> hPa: 500  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 74.5...77.5  
> 1000S.: (72.0...80.0)  
2nd speed 1/min: 1910  
Charge press. hPa: 1200  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: -  
3rd speed 1/min: 1800  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 22.0...36.0  
> 1000S.: (19.0...39.0)  
4th speed 1/min: 1630  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 67.0...73.0  
> 1000S.: (64.0...76.0)  
5th speed 1/min: 1450  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 90.0...94.0  
> 1000S.: (88.5...95.5)  
6th speed 1/min: 1050  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 89.0...95.0  
> 1000S.: (87.0...97.0)  
7th speed 1/min: 850  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 91.5...92.5  
> 1000S.: (89.0...95.0)  
8th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 49.5...53.5  
> 1000S.: (47.0...55.5)

Electr. shutoff:

1st speed 1/min: 400  
Charge press. hPa: -  
Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 390

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 5.0...9.0

> 1000S.: (3.0...11.0)

Dispersion cm<sup>3</sup>/: 4.0

> 1000S.: (5.0)

2nd speed 1/min: 300

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 22.0...30.0

> 1000S.: (20.0...32.0)

3rd speed 1/min: 450

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 0.00...3.00

> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 30.0...70.0

> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: -

MS† mm: 1.3...1.6

Ya mm: 39.5...41.5

Yb mm: 40.8...49.2

Remarks:

:  
:  
:

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM  
Edition : 14.03.96  
replaces : -  
Calibrating oil : ISO-4113  
Injection pump : VE4/12F1300R669  
Type number : 0 460 424 131  
Customer Part-No. :

Customer-specific information  
Customer : MWM

Engine : 4.10 T EURO I VW8140

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200  
Charge press. hPa: 1200  
Setting value mm: 3.1...3.3  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200  
Charge press hPa: 1200  
Setting value bar: 7.30...7.90  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850  
Charge press. hPa: 1200  
Del. quantity cm3/  
> 1000S.: 91.5...92.5  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 49.5...53.5  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 400  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 8.0...12.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.5  
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1530  
Charge press hPa: 1200  
Del. quantity cm3/  
> 1000S.: 65.0...71.0  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 63.00...103.00  
mind> 1000S.: 63.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000



Charge press hPa: 1200  
TD travel mm: 1.1...1.7  
> mm: (0.8...2.0)  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press hPa: 1200  
TD travel mm: 3.1...3.3  
> mm: (2.7...3.7)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1400  
Charge press hPa: 1200  
TD travel mm: 4.60...5.20  
> mm: (4.30...5.50)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 4.2...4.8  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 6.5...7.1  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 7.3...7.9  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1400  
Charge press. hPa: 1200  
Supply-pump pressure> bar: 8.1...8.7  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> cm3/10s: 38.8...83.3  
(23.8...98.3)  
2nd speed 1/min: 1300  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> cm3/10s: 36.10...119.40  
(21.10...134.40)

Delivery-quant. and breakaway char.:

L09

1st speed 1/min: 700  
Charge-air pressure-setting point> hPa: 500  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 74.5...77.5  
> 1000s.: (72.0...80.0)  
2nd speed 1/min: 1760  
Charge press. hPa: 1200  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: -  
3rd speed 1/min: 1670  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 22.0...36.0  
> 1000s.: (19.0...39.0)  
4th speed 1/min: 1530  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 65.0...71.0  
> 1000s.: (62.0...74.0)  
5th speed 1/min: 1300  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 92.5...96.5  
> 1000s.: (91.0...98.0)  
6th speed 1/min: 1050  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 89.0...95.0  
> 1000s.: (87.0...97.0)  
7th speed 1/min: 850  
Charge press. hPa: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 91.5...92.5  
> 1000s.: (89.0...95.0)  
8th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 49.5...53.5  
> 1000s.: (47.0...55.5)

Electr. shutoff:

1st speed 1/min: 400  
Charge press. hPa: -  
Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.0...12.0  
> 1000S.: (6.0...14.0)  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000S.: (5.0)  
2nd speed 1/min: 325  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 28.0...38.0  
> 1000S.: (27.0...39.0)  
3rd speed 1/min: 430  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 63.0...103.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: -  
MS1 mm: 1.3...1.6  
Ya mm: 45.5...46.5  
Yb mm: 36.3...44.7

Remarks:

:  
:

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX  
Edition : 14.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1400R682  
Type number : 0 460 424 133  
Customer Part-No. :

Customer-specific information  
Customer : MAXION

Engine : S4T-PLUS-EURO I

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1150  
Charge press. hPa: 1400  
Setting value mm: 2.4...2.6  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1150  
Charge press hPa: 1400  
Setting value bar: 6.70...7.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 950  
Charge press. hPa: 1400  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 95.0...96.0  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 74.5...78.5  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 22.0...26.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 3.5  
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1570  
Charge press hPa: 1400  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 59.5...65.5  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/: 125.0...165.0  
mind> 1000S.: 125.0  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950

Charge press hPa: 1400  
 TD travel mm: 0.9...1.5  
 > mm: (0.6...1.8)  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1150  
 Charge press hPa: 1400  
 TD travel mm: 2.4...2.6  
 > mm: (2.0...3.0)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1350  
 Charge press hPa: 1400  
 TD travel mm: 3.10...3.70  
 > mm: (2.80...4.00)  
 Shutoff  
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
 Charge press. hPa: 1400  
 Supply-pump pressure> bar: 3.9...4.5  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 950  
 Charge press. hPa: 1400  
 Supply-pump pressure> bar: 5.9...6.5  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1150  
 Charge press. hPa: 1400  
 Supply-pump pressure> bar: 6.7...7.3  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1350  
 Charge press. hPa: 1400  
 Supply-pump pressure> bar: 7.5...8.1  
 Shutoff  
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: (23.8...98.3)  
 2nd speed 1/min: 1300  
 Charge press. hPa: 1400  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: (21.10...134.40)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750  
 Charge-air pressure-setting point> hPa: 750  
 LDA-stroke mm: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 84.0...88.0  
 > 1000S.: (81.5...90.5)  
 2nd speed 1/min: 1830  
 Charge press. hPa: 1400  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 3rd speed 1/min: 1700  
 Charge press. hPa: 1400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 30.5...46.5  
 > 1000S.: (28.5...48.5)  
 4th speed 1/min: 1570  
 Charge press. hPa: 1400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 59.5...65.5  
 > 1000S.: (56.5...68.5)  
 5th speed 1/min: 1300  
 Charge press. hPa: 1400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 92.0...96.0  
 > 1000S.: (90.5...97.5)  
 6th speed 1/min: 950  
 Charge press. hPa: 1400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 95.0...96.0  
 > 1000S.: (92.5...98.5)  
 7th speed 1/min: 700  
 Charge press. hPa: 1400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 99.0...105.0  
 > 1000S.: (97.0...107.0)  
 8th speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 74.5...78.5  
 > 1000S.: (72.0...81.0)

Electr. shutoff:

1st speed 1/min: 400  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)

Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 22.0...26.0

> 1000S.: (20.0...28.0)

Dispersion cm<sup>3</sup>/: 4.0

> 1000S.: (5.0)

2nd speed 1/min: 270

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 49.0...57.0

> 1000S.: (47.0...59.0)

3rd speed 1/min: 450

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 0.00...3.00

> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 65.0...105.0

> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: -

MS1 mm: 1.2...1.5

Ya mm: 28.0...30.0

Yb mm: 45.8...54.2

Remarks:

:  
:

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN  
Edition : 25.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1200R568-1  
Type number : 0 460 424 134  
Customer Part-No. :

Customer-specific information  
Customer : MAN

Engine : D 0824 LF01

Power KW: 114

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 110

Opening  
Pressure> bar: 247.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850  
Charge press. hPa: 1500

Setting value mm: 2.0...2.4  
Shutoff  
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 850  
Charge press hPa: 1500  
Setting value bar: 6.40...7.00  
Shutoff  
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 107.5...108.5  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm<sup>3</sup>/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 60.5...61.5  
Shutoff  
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 400  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 13.0...17.0  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 6.0  
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1300  
Charge press hPa: 1500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 72.0...78.0  
Shutoff  
electromagnet>Volt: 24

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 105.0...165.0  
mind> 1000S.: 105.0  
Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
Charge press hPa: 1500  
TD travel mm: 0.7...1.5  
> mm: (0.4...1.8)  
electromagnet>Volt: 24  
2nd speed 1/min: 850  
Charge press hPa: 1500  
TD travel mm: 2.0...2.4  
> mm: (1.5...2.9)  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1000  
Charge press hPa: 1500  
TD travel mm: 3.60...4.40  
> mm: (3.30...4.70)  
Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 1200  
Charge press hPa: 1500  
TD travel mm: 4.5...5.3  
> mm: -

Supply-pump pressure characteristic:

1st speed 1/min: 550  
Charge press. hPa: 1500  
Supply-pump pressure> bar: 4.9...5.5  
Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 850  
Charge press. hPa: 1500  
Supply-pump pressure> bar: 6.4...7.0  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1200  
Charge press. hPa: 1500  
Supply-pump pressure> bar: 8.2...8.8  
Shutoff  
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 550  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> : 75.0...119.4  
cm<sup>3</sup>/10s: (60.0...134.4)  
2nd speed 1/min: 1200  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> : 97.2...180.5  
cm<sup>3</sup>/10s: (82.2...195.5)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 550  
Charge-air pressure-setting point> hPa: 400  
LDA-stroke mm: 7.6  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 80.5...81.5  
> 1000s.: (78.5...83.5)  
2nd speed 1/min: 1370  
Charge press. hPa: 1500  
Shutoff  
electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: -  
3rd speed 1/min: 1340  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 4.50...19.5  
> 1000s.: -  
4th speed 1/min: 1300  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 72.0...78.0  
> 1000s.: -  
5th speed 1/min: 1200  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 100.5...105.5  
> 1000s.: (99.0...107.0)  
6th speed 1/min: 1000  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 107.5...108.5  
> 1000s.: (105.5...110.5)  
7th speed 1/min: 850  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 111.5...116.5  
> 1000s.: (109.5...118.5)  
8th speed 1/min: 700  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 110.0...115.0  
> 1000s.: (107.0...118.0)  
9th speed 1/min: 550  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 60.5...61.5  
> 1000s.: (58.0...64.0)

10th speed 1/min: 550  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 109.5...118.5  
> 1000s.: (108.0...129.0)

Mech. shutoff:

1st speed 1/min: 1200  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000s.: -  
Shutoff  
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 400  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 13.0...17.0  
> 1000s.: (10.0...20.0)  
Dispersion cm<sup>3</sup>/: 6.0  
> 1000s.: (6.5)  
2nd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 430  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 48.0...88.0  
> 1000s.: -

2nd speed 1/min: 330  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 75.0...105.0  
> 1000s.: -

3rd speed 1/min: 100  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 44.0...46.0  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 20.0  
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: -  
MS1 mm: 1.3...1.6  
LDA stroke mm: 7.6  
FH mm: KSB 7.1MM  
Ya mm: 37.4...40.4  
Yb mm: 35.4...40.6

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
Edition : 12.02.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1250R498-4  
Type number : 0 460 426 245  
Customer Part-No. : 3 282 753

Customer-specific information  
Customer : CDC EURO2

Engine : 6 BTAA 5,9 B DI

Power KW: 107  
Speed 1/min: 2500

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 1.4  
> mm: ±0.02(0.06)  
Outlet > : D

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 900  
Charge press. hPa: 1000  
Setting value mm: 1.20...1.60  
Shutoff  
electromagnet>Volt: 24

## Supply-pump pressure

Speed 1/min: 900  
Charge press hPa: 1000  
Setting value bar: 5.90...6.50  
Shutoff  
electromagnet>Volt: 24

## Full-load del. with charge press.:

Speed 1/min: 850  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 82.50...83.50  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm<sup>3</sup>/: 5.0  
> 1000S.: (5.0)

## Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 69.00...70.00  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm<sup>3</sup>/: 5.0  
> 1000S.: (5.0)

## Low-idle speed regulation

Speed 1/min: 330  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.0...11.0  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)

## Full-load speed regulation

Speed 1/min: 1380  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 60.0...66.0  
Shutoff  
electromagnet>Volt: 24

## Start:

Speed 1/min: 100  
Charge press hPa: -

Del. quantity cm<sup>3</sup>/: 110.0...150.0  
mind> 1000S.: 130.0  
Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450  
Charge press hPa: -  
TD travel mm: 2.00...3.00  
> mm: (1.80...3.20)

KSB/AFB  
valve > Volt: 24  
electromagnet>Volt: 24  
2nd speed 1/min: 800  
Charge press hPa: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.30...1.70)

Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 900  
Charge press hPa: 1000  
TD travel mm: 1.20...1.60  
> mm: (0.70...2.10)

Shutoff  
electromagnet>Volt: 24  
5th speed 1/min: 1250  
Charge press. hPa: 1000  
TD travel mm: 2.40...3.20  
> mm: (2.10...3.50)

Shutoff  
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.90...4.50  
> bar: -

Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 800  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.40...6.10  
> bar: -

Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 900  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.90...6.50

Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 1250  
Charge press. hPa: 1000

Supply-pump  
pressure> bar: 7.2...7.8  
Shutoff  
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Overflow : 41.70...86.10  
quantity> cm<sup>3</sup>/10s: (26.70...101.10)

2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 450  
LDA-stroke mm: 7.0  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 83.50...84.50  
> 1000S.: (80.00...88.00)

2nd speed 1/min: 1490  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1430  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 15.0...45.0  
> 1000S.: -

4th speed 1/min: 1380  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 60.0...66.0  
> 1000S.: (55.0...71.0)

5th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 83.5...88.5  
> 1000S.: (83.0...89.0)

6th speed 1/min: 1100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 83.0...88.0

> 1000S.: (82.0...89.0)  
 7th speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 69.0...70.0  
 > 1000S.: (65.5...73.5)  
 8th speed 1/min: 850  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 82.5...83.5  
 > 1000S.: (80.0...86.0)

Electr. shutoff:

1st speed 1/min: 350  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 330  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 7.0...11.0  
 > 1000S.: (4.0...14.0)  
 Dispersion cm3/: 5.5  
 > 1000S.: (7.0)  
 2nd speed 1/min: 390  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 110.0...150.0  
 > 1000S.: -

2nd speed 1/min: 240  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 68.0...88.0  
 > 1000S.: -

Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS	mm: -
LDA stroke	mm: 7.0
Ya	mm: 34.8...38.8
Yb	mm: 45.3...50.1

Remarks:

:  
 :  
 Ya = Distance between VE flange and  
 speed-control lever in idle  
 position  
 Measurement point = edge of control  
 lever on drive end

Yb = Distance between VE flange and  
 speed-control lever in rated speed  
 position  
 Measurement point = edge of control  
 lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 12.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R498-5
Type number : 0 460 426 246
Customer Part-No. : 3 282 744

Customer-specific information
Customer : CDC EURO2

Engine : 6 BTAA 5,9 B DI

Power KW: 120
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.4
> mm: +-0.02(0.06)

Outlet > : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.60...2.00
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 6.50...7.10
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 79.50...80.50
Shutoff
electromagnet>Volt: 24
Dispersion cm3/: 5.0
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 71.00...72.00
Shutoff
electromagnet>Volt: 24
Dispersion cm3/: 5.0
> 1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
> 1000S.: 8.0...12.0
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 5.5
> 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 54.0...66.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Charge press hPa: -

Del. quantity cm<sup>3</sup>/: 75.0...115.0  
mind> 1000s.: 75.0  
Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450  
Charge press hPa: -  
TD travel mm: 1.90...2.90  
> mm: (1.70...3.10)

KSB/AFB

valve > Volt: 24  
electromagnet>Volt: 24  
2nd speed 1/min: 1100  
Charge press hPa: 1000  
TD travel mm: 1.60...2.00  
> mm: (1.10...2.50)

Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 1250  
Charge press hPa: 1000  
TD travel mm: 2.00...2.80  
> mm: (1.70...3.10)  
Shutoff  
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.90...4.50  
> bar: -

Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 800  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.40...6.10  
> bar: -

Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1100  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.50...7.10

Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 1250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.0...7.6  
Shutoff  
electromagnet>Volt: 24

Overlow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Overflow : 41.70...86.10  
quantity> cm<sup>3</sup>/10s: (26.70...101.10)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 450  
LDA-stroke mm: 7.0  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 77.50...78.50  
> 1000s.: (74.00...82.00)

2nd speed 1/min: 1500  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)

3rd speed 1/min: 1465  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 00.0...40.0  
> 1000s.: -

4th speed 1/min: 1380  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 54.0...66.0  
> 1000s.: (52.0...68.0)

5th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 82.5...86.5  
> 1000s.: (81.0...88.0)

6th speed 1/min: 1100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 81.5...86.5  
> 1000s.: (80.0...88.0)

7th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 71.0...72.0

> 1000S.: (67.5...75.5)  
8th speed 1/min: 850  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 79.5...80.5  
> 1000S.: (77.0...83.0)

Mech. shutoff:

1st speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -

Shutoff  
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 325  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 8.0...12.0  
> 1000S.: (5.0...15.0)

Dispersion cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)

2nd speed 1/min: 410  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 80.0...120.0  
> 1000S.: -

2nd speed 1/min: 240  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 70.0...90.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS	mm: -
LDA stroke	mm: 7.0
Ya	mm: 34.8...38.8
Yb	mm: 45.3...50.1

Remarks:

:  
:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
Edition : 12.02.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1250R498-6  
Type number : 0 460 426 249  
Customer Part-No. : 3 282 743

Customer-specific information  
Customer : CDC

Engine : 6 BTAA 5,9 B DI

Power KW: 133  
Speed 1/min: 2500

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 1.4  
> mm: ±0.02(0.06)

Outlet > : D

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 850  
Charge press. hPa: 1000  
Setting value mm: 1.30...1.70  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 850  
Charge press hPa: 1000  
Setting value bar: 5.50...6.10  
Shutoff  
electromagnet>Volt: 12

## Full-load del. with charge press.:

Speed 1/min: 850  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000s.: 86.00...87.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 5.0  
> 1000s.: (5.0)

## Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000s.: 59.50...60.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 5.0  
> 1000s.: (5.0)

## Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm<sup>3</sup>/  
> 1000s.: 13.0...17.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 5.5  
> 1000s.: (7.0)

## Full-load speed regulation

Speed 1/min: 1380  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000s.: 65.50...71.50  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Charge press hPa: -

Del. quantity cm3/: 80.0...110.0  
mind> 1000S.: 80.0  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450  
Charge press hPa: -  
TD travel mm: 1.90...2.90  
> mm: (1.70...3.10)  
KSB/AFB  
valve > Volt: 12  
electromagnet>Volt: 12  
2nd speed 1/min: 750  
Charge press hPa: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.30...1.70)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 850  
Charge press hPa: 1000  
TD travel mm: 1.30...1.70  
> mm: (0.80...2.20)  
Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1250  
Charge press. hPa: 1000  
TD travel mm: 2.00...2.80  
> mm: (1.70...3.10)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.90...4.50  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 850  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.50...6.10  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.9...7.5

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm3/10s: (26.70...101.10)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 78.00...79.00  
> 1000S.: (74.50...82.50)  
2nd speed 1/min: 1530  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
3rd speed 1/min: 1465  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 17.5...37.5  
> 1000S.: -  
4th speed 1/min: 1380  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 65.5...71.5  
> 1000S.: (62.5...74.5)  
5th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 84.0...87.0  
> 1000S.: (82.0...89.0)  
6th speed 1/min: 1100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 86.5...89.5  
> 1000S.: (84.5...91.5)  
7th speed 1/min: 500  
Charge press. hPa: -



Shutoff  
electromagnet>Volt: 12

Electr. shutoff:

1st speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 13.0...17.00  
> 1000S.: (10.0...20.0)  
Dispersion cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)  
2nd speed 1/min: 410  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 80.0...120.0  
> 1000S.: -

2nd speed 1/min: 230  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 55.0...85.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: 6.2...6.6  
MS mm: -  
LDA stroke mm: -  
Ya mm: 34.8...38.8  
Yb mm: 42.7...48.3

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM  
Edition : 06.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1400R665  
Type number : 0 460 426 250  
Customer Part-No. :

Customer-specific information  
Customer : MWM

Engine : 6.10 NA

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1200  
Setting value mm: 2.70...2.90  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 1200

Setting value bar: 8.00...8.60  
Shutoff  
electromagnet>Volt: 12

## Full-load del. w/out charge press.:

Speed 1/min: 750  
Del. quantity cm3/  
> 1000s.: 66.0...67.0  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000s.: (4.5)

## Low-idle speed regulation

Speed 1/min: 400  
Del. quantity cm3/  
> 1000s.: 14.0...18.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.5  
> 1000s.: (5.0)

## Full-load speed regulation

Speed 1/min: 1550  
Del. quantity cm3/  
> 1000s.: 47.50...54.50  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Del. quantity cm3/: 90.00...130.00  
mind> 1000s.: 90.0  
Shutoff  
electromagnet>Volt: 12

## Inspection-pump test specifications Test specifications in parentheses

## Timing-device characteristic:

1st speed 1/min: 1000  
TD travel mm: 0.60...1.20  
> mm: (0.30...1.50)  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
TD travel mm: 2.70...2.90  
> mm: (2.30...3.30)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1400  
TD travel mm: 3.90...4.50  
> mm: (3.60...4.80)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump pressure> bar: 4.60...5.20  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Supply-pump pressure> bar: 7.00...7.60  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
Supply-pump pressure> bar: 8.00...8.60  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1400  
Supply-pump pressure> bar: 8.60...9.20  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> cm3/10s: (55.50...100.5)  
2nd speed 1/min: 1400  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> cm3/10s: (52.70...136.10)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1740  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.0...3.0  
> 1000s.: -  
2nd speed 1/min: 1650  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 21.0...35.0  
> 1000s.: (18.0...38.0)  
3rd speed 1/min: 1550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 48.5...54.5  
> 1000s.: (45.5...57.5)  
4th speed 1/min: 1400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 65.5...69.5  
> 1000s.: (64.0...70.5)  
5th speed 1/min: 1000

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 72.0...78.0  
> 1000s.: (70.0...80.0)  
6th speed 1/min: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 66.0...67.0  
> 1000s.: (63.5...69.5)  
7th speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 58.0...64.0  
> 1000s.: (56.0...66.0)

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 14.0...18.00  
> 1000s.: (12.0...20.00)  
Dispersion cm3/: 3.5  
> 1000s.: (5.0)  
2nd speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 31.0...39.0  
> 1000s.: (29.0...41.0)  
3rd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 260  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 40.00...80.00  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
MS1	mm: 1.1...1.4
Ya	mm: 41.0...43.0
Yb	mm: 37.8...46.2

Remarks:

⋮

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
Edition : 08.02.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1250R498-7  
Type number : 0 460 426 251  
Customer Part-No. :

Customer-specific information  
Customer : CUMMINS

Engine : 6 BT

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 1.4  
> mm: ±0.02(0.04)  
Outlet > : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000  
Charge press. hPa: 1000  
Setting value mm: 1.60...2.00  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 1000  
Charge press hPa: 1000  
Setting value bar: 6.00...6.60  
Shutoff  
electromagnet>Volt: 12

## Full-load del. with charge press.:

Speed 1/min: 850  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 80.00...81.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/  
> 1000S.: (5.0)

## Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 58.50...59.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/  
> 1000S.: (6.0)

## Low-idle speed regulation

Speed 1/min: 320  
Del. quantity cm3/  
> 1000S.: 11.5...15.5  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/  
> 1000S.: (7.0)

## Full-load speed regulation

Speed 1/min: 1380  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 51.00...57.00  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Del. quantity cm3/  
mind> 1000S.: 130.0

Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450  
Charge press hPa: -  
TD travel mm: 1.90...2.90  
> mm: (1.70...3.10)

KSB/AFB  
valve > Volt: 12  
electromagnet>Volt: 12  
2nd speed 1/min: 850  
Charge press hPa: 1000  
TD travel mm: 0.50...1.30  
> mm: (0.20...1.60)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.60...2.00  
> mm: (1.10...2.50)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1250  
Charge press hPa: 1000  
TD travel mm: 2.00...2.80  
> mm: (1.70...3.10)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.10...4.70

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 850  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.50...6.10

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.00...6.60

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.00...7.60

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.50...100.5  
quantity> cm3/10s: (40.50...115.5)

2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 52.70...136.10  
quantity> cm3/10s: (37.70...151.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 500  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 79.50...81.50  
> 1000S.: (76.00...84.00)

2nd speed 1/min: 1500  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1450  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 12.0...32.0  
> 1000S.: -

4th speed 1/min: 1380  
Charge press. hPa: 1000  
Del. quantity cm3/: 51.0...57.0  
> 1000S.: (48.0...60.0)

5th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 81.50...84.50  
> 1000S.: (80.00...86.00)

6th speed 1/min: 1200  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 82.0...85.0  
> 1000S.: (80.0...87.0)

7th speed 1/min: 850  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 80.0...81.0

> 1000s.: (77.5...83.5)  
8th speed 1/min: 500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 90.50...100.5  
> 1000s.: -

Mech. shutoff:

1st speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 320  
Charge press. hPa: -  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 320  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 11.5...15.50  
> 1000s.: (8.50...18.50)  
Dispersion cm3/: 5.5  
> 1000s.: (7.0)

2nd speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 21.0...29.0  
> 1000s.: (19.0...31.0)  
3rd speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 130.00...170.00  
> 1000s.: -

2nd speed 1/min: 240  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 50.00...80.00  
> 1000s.: -

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 115.00...145.00  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: -  
MS mm: -  
LDA stroke mm: -  
Ya mm: 34.5...38.5  
Yb mm: 45.2...50.8

Remarks:

:  
:  
Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 27.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1350R623-1
Type number : 0 460 426 252
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.45.5200 EURO2

Power KW: 152

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1050
Charge press. hPa: 1000
Setting value mm: 2.10...2.30

AFB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Supply-pump pressure
Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.5...7.1
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 82.50...83.50

KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Dispersion cm3/
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 52.50...53.50

KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 340
Del. quantity cm3/
> 1000S.: 13.0...17.0

KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 4.0
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1450
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 55.00...59.00

KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24



Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 60.00...110.00  
mind> 1000s.: 60.0  
KSB/AFB  
Valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 950  
Charge press hPa: 1000  
TD travel mm: 0.90...1.50  
> mm: (0.50...1.90)

KSB/AFB  
valve > Volt: 24  
electromagnet>Volt: 24  
2nd speed 1/min: 1050  
Charge press hPa: 1000  
TD travel mm: 2.10...2.30  
> mm: (1.50...2.90)

KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 340  
Charge press hPa: 1000  
TD travel mm: 1.8...2.2 A  
> mm: -

KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 470  
Charge press hPa: 1000  
TD travel mm: 2.2...3.4 B  
> mm: -

KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 470  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.00...7.60

KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 600  
Charge press. hPa: 1000

Supply-pump  
pressure> bar: 4.10...4.70

KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

3rd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.50...7.10

KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

4th speed 1/min: 1350  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 8.40...9.00

KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
Overflow : 55.50...100.5  
quantity> cm<sup>3</sup>/10s: (40.50...115.5)

2nd speed 1/min: 1350  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
Overflow : 52.70...136.10  
quantity> cm<sup>3</sup>/10s: (37.70...151.10)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 400  
LDA-stroke mm: -  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 73.0...74.0  
> 1000s.: (79.5...86.5)

2nd speed 1/min: 1600  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 24  
Shutoff

electromagnet Volt: 24  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 3rd speed 1/min: 1530  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 23.0...31.0  
 > 1000S.: (21.0...33.0)  
 4th speed 1/min: 1450  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Del. quantity cm3/: 55.0...59.0  
 > 1000S.: (51.0...63.0)  
 5th speed 1/min: 1200  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 86.0...90.0  
 > 1000S.: (84.5...91.5)  
 6th speed 1/min: 1350  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 79.0...82.0  
 > 1000S.: (77.0...84.0)  
 7th speed 1/min: 700  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 82.5...83.5  
 > 1000S.: (79.5...86.5)  
 8th speed 1/min: 500  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 84.50...88.5  
 > 1000S.: (83.0...90.0)  
 9th speed 1/min: 599  
 Charge press. hPa: -  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 52.5...53.5  
 > 1000S.: (49.5...56.5)

Electr. shutoff:

1st speed 1/min: 350  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 340  
 >KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 13.0...17.0  
 > 1000S.: (10.0...20.0)  
 Dispersion cm3/: 4.0  
 > 1000S.: (5.0)  
 2nd speed 1/min: 370  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 0.00...10.0  
 > 1000S.: -  
 3rd speed 1/min: 425  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 75.0...125.0  
 > 1000S.: -  
 2nd speed 1/min: 350  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 45.00...65.00  
 > 1000S.: -  
 4th speed 1/min: 100  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 60.00...110.00  
 > 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.5...3.7

KF mm: -

MS mm: -

MS1 mm: 1.3...1.6

LDA stroke mm: -

Ya mm: 37.9...39.9

Yb mm: 41.4...46.6

Remarks:

:  
:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
Edition : 12.02.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1250R671  
Type number : 0 460 426 254  
Customer Part-No. : 3 282 755

Customer-specific information  
Customer : CDC EURO2

Engine : 6 BTAA 5,9 B DI

Power KW: 96  
Speed 1/min: 2500

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 204.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 1.4  
> mm: +0.02(0.06)

Outlet > : D

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1100  
Charge press. hPa: 1000  
Setting value mm: 1.60...2.00  
Shutoff  
electromagnet>Volt: 24

## Supply-pump pressure

Speed 1/min: 1100  
Charge press hPa: 1000  
Setting value bar: 6.70...7.30  
Shutoff  
electromagnet>Volt: 24

## Full-load del. with charge press.:

Speed 1/min: 850  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 81.00...82.00  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm<sup>3</sup>/: 5.0  
> 1000S.: (5.0)

## Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 65.0...66.0  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm<sup>3</sup>/: 5.0  
> 1000S.: (5.0)

## Low-idle speed regulation

Speed 1/min: 300  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.5...11.5  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)

## Full-load speed regulation

Speed 1/min: 1400  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 33.5...39.5  
Shutoff  
electromagnet>Volt: 24

## Start:

Speed 1/min: 100  
Charge press hPa: -

Del. quantity cm<sup>3</sup>/: 70.0...100.0  
mind> 1000S.: 70.0  
Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450  
Charge press hPa: -  
TD travel mm: 1.80...2.80  
> mm: (1.60...3.00)

KSB/AFB

valve > Volt: 24  
electromagnet>Volt: 24  
2nd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.50...1.70  
> mm: -

Shutoff

electromagnet>Volt: 24  
3rd speed 1/min: 1100  
Charge press hPa: 1000  
TD travel mm: 1.6...2.0  
> mm: (1.1...2.5)

Shutoff

electromagnet>Volt: 24  
4th speed 1/min: 1250  
Charge press hPa: 1000  
TD travel mm: 1.90...2.70  
> mm: (1.60...3.00)

Shutoff

electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.20...4.80  
> bar: -

Shutoff

electromagnet>Volt: 24  
2nd speed 1/min: 1100  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.70...7.30  
> bar: -

Shutoff

electromagnet>Volt: 24  
3rd speed 1/min: 1250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.40...8.00

Shutoff

electromagnet>Volt: 24

Overlow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Overflow : 37.50...82.00  
quantity> cm<sup>3</sup>/10s: (22.50...97.00)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Overflow : 44.40...100.00  
quantity> cm<sup>3</sup>/10s: (29.40...115.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 300  
LDA-stroke mm: 5.3  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 73.50...74.50  
> 1000S.: (70.00...78.00)

2nd speed 1/min: 1490  
Charge press. hPa: 1000

Shutoff

electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1445  
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 2.0...32.0  
> 1000S.: -

4th speed 1/min: 1400  
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 33.5...39.5  
> 1000S.: (30.5...42.5)

5th speed 1/min: 1250  
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 82.0...86.0  
> 1000S.: (81.0...87.0)

6th speed 1/min: 500  
Charge press. hPa: -

Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 65.0...66.0  
> 1000S.: (61.5...69.5)

7th speed 1/min: 850  
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 81.0...82.0

> 1000S.: (78.5...84.5)

Mech. shutoff:

1st speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -

Shutoff  
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 300  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 300  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 7.5...11.5  
> 1000S.: (4.5...14.5)

Dispersion cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)

2nd speed 1/min: 370  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 80.0...120.0  
> 1000S.: -

2nd speed 1/min: 210  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 60.0...90.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8

KF mm: 6.2...6.6  
MS1 mm: 1.0..1.25  
LDA stroke mm: 5.3  
Ya mm: 34.8...38.8  
Yb mm: 43.0...48.6

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 26.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R498-8
Type number : 0 460 426 256
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTAA 5,9 B DI

Power KW: 118
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 109

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.4
> mm: +0.02(0.06)
Outlet > : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.50...1.90
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
> 1000s.: 84.00...85.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 5.0
> 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000s.: 70.5...71.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 5.0
> 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000s.: 6.0...10.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 5.5
> 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
Charge press hPa: 1000
Del. quantity cm3/
> 1000s.: 57.5...63.5
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100

Charge press hPa: -  
Del. quantity cm3/: 70.0...100.0  
mind> 1000S.: 70.0  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450  
Charge press hPa: -  
TD travel mm: 1.90...2.90  
> mm: (1.70...3.10)

KSB/AFB  
valve > Volt: 12  
electromagnet>Volt: 12  
2nd speed 1/min: 850  
Charge press hPa: 1000  
TD travel mm: 0.30...1.10  
> mm: (0.00...1.40)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.5...1.9  
> mm: (1.0...2.4)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1250  
Charge press hPa: 1000  
TD travel mm: 2.00...2.80  
> mm: (1.70...3.10)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.10...4.70  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 850  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.90...6.50  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.30...6.90  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1250  
Charge press. hPa: 1000  
Supply-pump

pressure> bar: 7.3...7.9  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow : 37.50...82.00  
quantity> cm3/10s: (22.50...97.00)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 44.40...100.00  
quantity> cm3/10s: (29.40...115.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 450  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 79.00...80.00  
> 1000S.: (75.50...83.50)  
2nd speed 1/min: 1510  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
3rd speed 1/min: 1465  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 12.0...32.0  
> 1000S.: -  
4th speed 1/min: 1380  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 57.5...63.5  
> 1000S.: (54.5...66.5)  
5th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 82.5...85.5  
> 1000S.: (81.0...87.0)  
6th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 70.5...71.5  
> 1000S.: (67.0...75.0)



7th speed 1/min: 850  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 84.0...85.0  
> 1000S.: (81.5...87.5)

Mech. shutoff:

1st speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -

Shutoff  
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 350  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 6.0...10.0  
> 1000S.: (3.0...13.0)  
Dispersion cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)

2nd speed 1/min: 410  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 75.0...115.0  
> 1000S.: -

2nd speed 1/min: 240  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 65.0...95.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.2...6.6
MS1	mm: 1.2...1.35
Ya	mm: 34.8...38.8
Yb	mm: 43.8...49.4

Remarks:

:  
:  
Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
 Edition : 26.02.96  
 replaces : -  
 Calibrating oil : ISO-4113  
 Injection pump : VE6/12F1250R373-8  
 Type number : 0 460 426 257  
 Customer Part-No. : 3 930 172

Customer-specific information  
 Customer : CDC

Engine : 6 BTA 590 DI

Power KW: 130  
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
 return>temp. > °C  
 with>thermometer> : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
 assembly> : 1 688 901 027

Opening  
 Pressure> bar: 247.00...253.00

Perforated-plate  
 diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
 x Wall>thickness : 2.00  
 x Length> mm: 840

Start of delivery  
 Prestroke mm: 0.3  
 > (from BDC): ±0.02(0.04)

Start of delivery block  
 Piston stroke mm: 1.85  
 > mm: ±0.02(0.06)  
 Outlet > : D

Injection-pump setting values  
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 750  
 Charge press. hPa: 1000  
 Setting value mm: 1.30...1.70  
 Shutoff  
 electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 750  
 Charge press hPa: 1000  
 Setting value bar: 3.20...3.80  
 Shutoff  
 electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750  
 Charge press. hPa: 1000  
 Del. quantity cm<sup>3</sup>/  
 > 1000S.: 84.50...85.50  
 Shutoff  
 electromagnet>Volt: 24  
 Dispersion cm<sup>3</sup>/: 4.0  
 > 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500  
 Del. quantity cm<sup>3</sup>/  
 > 1000S.: 68.5...69.5  
 Shutoff  
 electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 375  
 Del. quantity cm<sup>3</sup>/  
 > 1000S.: 8.0...14.0  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm<sup>3</sup>/: 5.5  
 > 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1300  
 Charge press hPa: 1000  
 Del. quantity cm<sup>3</sup>/  
 > 1000S.: 59.0...65.0  
 Shutoff  
 electromagnet>Volt: 24

Start:

Speed 1/min: 100  
 Charge press hPa: -  
 Del. quantity cm<sup>3</sup>/: 70.0...130.0  
 mind> 1000S.: 70.0

Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press hPa: 1000  
TD travel mm: 0.40...1.20  
> mm: (0.10...1.50)

electromagnet>Volt: 24  
2nd speed 1/min: 750  
Charge press hPa: 1000  
TD travel mm: 1.30...1.70  
> mm: (0.80...2.20)

Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1050  
Charge press hPa: 1000  
TD travel mm: 2.2...3.0  
> mm: (1.9...3.3)

Shutoff  
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 2.20...2.80

Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.20...3.80

Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1050  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.50...5.10

Shutoff  
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Overflow : 37.50...82.00  
quantity> cm<sup>3</sup>/10s: (22.50...97.00)

2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Overflow : 44.40...100.00

quantity> cm<sup>3</sup>/10s: (29.40...115.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700  
Charge-air pressure-setting  
point> hPa: 400  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 77.50...78.50  
> 1000S.: (74.00...82.00)

2nd speed 1/min: 1400  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

3rd speed 1/min: 1330  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 18.0...58.0  
> 1000S.: -

4th speed 1/min: 1300  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 59.0...65.0  
> 1000S.: (56.0...68.0)

5th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 76.5...79.5  
> 1000S.: (75.0...81.0)

6th speed 1/min: 1050  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 80.0...83.0  
> 1000S.: (78.0...85.0)

7th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 68.5...69.5  
> 1000S.: (65.0...73.0)

8th speed 1/min: 750  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 84.5...85.5  
> 1000S.: (82.0...88.0)

Mech. shutoff:

1st speed 1/min: 1250

Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -  
Shutoff  
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 375  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 375  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 8.0...14.0  
> 1000S.: (6.0...16.0)  
Dispersion cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)  
2nd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...4.00  
> 1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 80.0...140.0  
> 1000S.: -

2nd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 48.0...88.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS1	mm: 1.4...1.7
SVS max.	mm: 6.0
LDA stroke	mm: -
Ya	mm: 34.8...38.8
Yb	mm: 42.8...48.2

Remarks:  
:  
:  
Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 27.02.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1200R496-1
Type number : 0 460 426 258
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 LF07 DI

Power KW: 140

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: 0.3
> (from BDC): +-0,02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Charge press. hPa: 1000

Setting value mm: 2.00...2.40
Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 850
Charge press hPa: 1000
Setting value bar: 7.30...7.90
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 91.50...92.50
Shutoff
electromagnet>Volt: 24
Dispersion cm3/
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 59.5...60.5
Shutoff
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 250
Del. quantity cm3/
> 1000S.: 16.5...23.5
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1280
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 62.0...68.0
Shutoff
electromagnet>Volt: 24

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/
mind> 1000S.: 60.0
Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
Charge press hPa: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.30...1.70)  
electromagnet>Volt: 24  
2nd speed 1/min: 850  
Charge press hPa: 1000  
TD travel mm: 2.00...2.40  
> mm: (1.50...2.90)  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 950  
Charge press hPa: 1000  
TD travel mm: 2.9...3.7  
> mm: (2.6...4.0)  
Shutoff  
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 5.50...6.10  
Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 850  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 7.30...7.90  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1200  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 9.00...9.60  
Shutoff  
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Overflow quantity> cm<sup>3</sup>/10s: (22.50...97.00)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Overflow quantity> cm<sup>3</sup>/10s: (29.40...115.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500  
Charge-air pressure-setting point> hPa: 450  
LDA-stroke mm: 7.5  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: (90.50...95.50)  
> 1000S.: (90.50...95.50)  
2nd speed 1/min: 1450  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: (0.00...3.00)  
> 1000S.: (0.00...3.00)  
3rd speed 1/min: 1350  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: 0.00...15.0  
> 1000S.: -  
4th speed 1/min: 1300  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: 30.0...56.0  
> 1000S.: -  
5th speed 1/min: 1280  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: (60.5...69.5)  
> 1000S.: (60.5...69.5)  
6th speed 1/min: 1200  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: (85.4...93.4)  
> 1000S.: (85.4...93.4)  
7th speed 1/min: 800  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: (90.6...98.6)  
> 1000S.: (90.6...98.6)  
8th speed 1/min: 600  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: (97.0...105.0)  
> 1000S.: (97.0...105.0)  
9th speed 1/min: 500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/1000S.: (100.6...112.6)  
> 1000S.: (100.6...112.6)  
10th speed 1/min: 500  
Charge press. hPa: -  
Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 59.5...60.5  
> 1000s.: (57.5...62.5)  
11th speed 1/min: 1000  
Charge press. hPa: 1000  
Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 91.5...92.5  
> 1000s.: (89.5...94.5)

Mech. shutoff:

1st speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000s.: -

Shutoff

electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 250  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)

Shutoff

electromagnet>volt: -

Idle delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 16.5...23.5  
> 1000s.: (14.5...25.5)

Dispersion cm<sup>3</sup>/: 6.0  
> 1000s.: (6.5)

2nd speed 1/min: 400

Shutoff

electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 330  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 70.0...100.0  
> 1000s.: -

2nd speed 1/min: 430  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 40.0...70.0  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: KOT
MS	mm: 0.9...1.3
LDA stroke	mm: 7.5
Ya	mm: 37.4...40.4
Yb	mm: 44.2...49.4

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2500R611-1
Type number : 0 460 484 099
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : TUD 5-L3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 0.8
Outlet > : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.80...5.20
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.00...6.60
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm3/
> 1000S.: 23.5...24.5
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 11.0...13.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 1.5...2.5
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650
Del. quantity cm3/
> 1000S.: 10.00...14.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 200
Del. quantity cm3/: 39.00...41.00
mind> 1000S.: 32.50
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 1.20...2.00



> mm: (0.90...2.30)  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
TD travel mm: 4.80...5.20  
> mm: (4.30...5.70)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2200  
TD travel mm: 7.90...8.70  
> mm: (7.60...9.00)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 2450  
TD travel mm: 9.50...10.1  
> mm: -

Shutoff  
electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 800  
Supply-pump  
pressure> bar: 4.30...4.90  
Shutoff

electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Supply-pump  
pressure> bar: 6.00...6.60  
Shutoff

electromagnet>Volt: 12  
3rd speed 1/min: 2200  
Supply-pump  
pressure> bar: 7.80...8.40  
Shutoff

electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm<sup>3</sup>/10s: (26.70...101.10)

2nd speed 1/min: 2450  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 2800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

2nd speed 1/min: 2650  
Shutoff  
electromagnet Volt: 12

Del. quantity cm<sup>3</sup>/: 10.0...14.0  
> 1000S.: (8.0...16.0)  
3rd speed 1/min: 2580

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 17.0...23.0  
> 1000S.: (15.0...25.0)  
4th speed 1/min: 2450

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 25.0...27.0  
> 1000S.: (24.8...28.2)  
5th speed 1/min: 1500

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 23.50...24.50  
> 1000S.: (21.80...26.20)  
6th speed 1/min: 600

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 24.0...27.0  
> 1000S.: (22.5...28.5)

#### Electr. shutoff:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 11.0...13.0  
> 1000S.: (8.0...16.0)  
Dispersion cm<sup>3</sup>/: 2.0  
> 1000S.: (3.0)

#### High Idle:

1st speed 1/mi: 475  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 11.0...13.0  
> 1000S.: (8.0...16.0)

#### Rest delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 1.5...2.5  
> 1000S.: (0.0...4.0)

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 14.3...16.3  
> 1000S.: (11.3...19.3)

Automatic starting fuel delivery:

1st speed 1/min: 340

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 12.5...32.5  
> 1000S.: -

2nd speed 1/min: 250

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.0...69.0  
> 1000S.: -

4th speed 1/min: 200

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 39.00...41.00  
> 1000S.: (32.5...47.5)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: -

MS mm: 0.8...1.2

Ya mm: 32.0...36.0

Yb mm: 52.9...61.9

Remarks:

:  
:  
:

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU  
Edition : 11.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/8F2500R611-2  
Type number : 0 460 484 100  
Customer Part-No. :

Customer-specific information  
Customer : PSA

Engine : TUD 5-L3

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 0.8  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500  
Setting value mm: 4.80...5.20  
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Setting value bar: 6.00...6.60  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500  
Del. quantity cm3/  
> 1000S.: 23.5...24.5  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm3/  
> 1000S.: 11.0...13.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.0  
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 1.5...2.5  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 200  
Del. quantity cm3/: 39.00...41.00  
mind> 1000S.: 32.50  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 1.20...2.00

> mm: (0.90...2.30)  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
TD travel mm: 4.80...5.20  
> mm: (4.30...5.70)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2200  
TD travel mm: 7.90...8.70  
> mm: (7.60...9.00)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 2450  
TD travel mm: 9.50...10.1  
> mm: -

Shutoff  
electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure> bar: 4.30...4.90  
Shutoff

electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Supply-pump  
pressure> bar: 6.00...6.60  
Shutoff

electromagnet>Volt: 12  
3rd speed 1/min: 2200  
Supply-pump  
pressure> bar: 7.80...8.40  
Shutoff  
electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm<sup>3</sup>/10s: (26.70...101.10)  
2nd speed 1/min: 2450  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 2800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
2nd speed 1/min: 2650  
Shutoff  
electromagnet Volt: 12

Del. quantity cm<sup>3</sup>/: 10.0...14.0  
> 1000s.: (8.0...16.0)  
3rd speed 1/min: 2580  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 17.0...23.0  
> 1000s.: (15.0...25.0)  
4th speed 1/min: 2450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 25.0...27.0  
> 1000s.: (24.8...28.2)  
5th speed 1/min: 1500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 23.50...24.50  
> 1000s.: (21.80...26.20)  
6th speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 24.0...27.0  
> 1000s.: (22.5...28.5)

#### Electr. shutoff:

1st speed 1/min: 350  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 11.0...13.0  
> 1000s.: (8.0...16.0)  
Dispersion cm<sup>3</sup>/: 2.0  
> 1000s.: (3.0)

#### High Idle:

1st speed 1/mi: 475  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 11.0...13.0  
> 1000s.: (8.0...16.0)

#### Rest delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 1.5...2.5  
> 1000S.: (0.0...4.0)

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 14.3...16.3  
> 1000S.: (11.3...19.3)

Automatic starting fuel delivery:

1st speed 1/min: 340  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 12.5...32.5  
> 1000S.: -

2nd speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.0...69.0  
> 1000S.: -

4th speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 39.00...41.00  
> 1000S.: (32.5...47.5)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: -  
MS mm: 0.8...1.2  
Ya mm: 32.0...36.0  
Yb mm: 52.9...61.9

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN  
Edition : 11.03.96  
replaces : -  
Calibrating oil : ISO-4113  
Injection pump : VE4/8F2300R652  
Type number : 0 460 484 103  
Customer Part-No. :

Customer-specific information  
Customer : RENAULT

Engine : F8Q-646

Power KW: 45

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1250  
Setting value mm: 3.50...3.90  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12

## Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 31.0...32.0  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.5  
> 1000S.: (3.0)

## Low-idle speed regulation

Speed 1/min: 410  
Del. quantity cm3/  
> 1000S.: 7.50...11.5  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.5  
> 1000S.: (2.5)

## Residual-Delivery Setting

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 2.5...3.5  
Shutoff  
electromagnet Volt: 12

## Full-load speed regulation

Speed 1/min: 2450  
Del. quantity cm3/  
> 1000S.: 21.50...27.50  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Del. quantity cm3/: 40.0...60.0  
mind> 1000S.: 40.0  
Shutoff  
electromagnet>Volt: 12

## Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1250  
Inj.-qty. cm3/  
difference> 1000S.: - 6.5...12.5 \*  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1250  
TD-travel  
difference> mm: - 0.6...0.8 \*  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 0.80...1.60  
> mm: (0.60...1.80)  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
TD travel mm: 3.50...3.90  
> mm: (3.20...4.20)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
TD travel mm: 5.70...6.50  
> mm: (5.50...6.70)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure> bar: 3.30...3.90  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Supply-pump  
pressure> bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Supply-pump  
pressure> bar: 7.20...7.80  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm3/10s: (26.70...101.10)  
2nd speed 1/min: 2250  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...5.00  
> 1000s.: (0.00...5.00)  
2nd speed 1/min: 2650  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 5.5...13.5  
> 1000s.: (4.5...14.5)  
3rd speed 1/min: 2450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 21.5...27.5  
> 1000s.: (20.5...28.5)  
4th speed 1/min: 2250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 31.1...33.1  
> 1000s.: (29.8...34.4)  
5th speed 1/min: 2000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 31.50...33.50  
> 1000s.: (30.20...34.80)  
6th speed 1/min: 1625  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 29.5...32.5  
> 1000s.: (28.7...33.3)  
8th speed 1/min: 1250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 31.0...32.0  
> 1000s.: (29.2...33.8)  
9th speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 30.4...33.4  
> 1000s.: (29.6...34.2)

Electr. shutoff:

1st speed 1/min: 410  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 410  
Shutoff

electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 7.50...11.5  
> 1000S.: (5.5...13.5)  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (2.5)

#### High Idle:

1st speed 1/mi: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 7.0...11.0  
> 1000S.: (5.0...13.0)

#### Rest delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 1.0...5.0  
> 1000S.: (1.0...5.0)

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/ : - 6.0...8.0 #  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/: 2.0...8.0 " Z  
difference> 1000S.: -  
Shutoff  
electromagnet Volt: 12  
3rd speed 1/min: 1250  
Charge press. hPa: ALFB  
Inj.-qty. cm<sup>3</sup>/: 2.0...8.0 Z  
difference> 1000S.: (12 V)  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1250  
TD-travel : - 1.2...1.6 "  
difference> mm: - (1.1...1.7)  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: ALFB  
TD-travel : 0.0...0.6  
difference> mm: (12 V)  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Supply pump-

pressure > : - 0.1...0.3 #  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

#### Automatic starting fuel delivery:

1st speed 1/min: 310  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 25.0...45.0  
> 1000S.: -

2nd speed 1/min: 210  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.0...75.0  
> 1000S.: -

4th speed 1/min: 110  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...70.00  
> 1000S.: -

#### Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.3...5.5  
MS mm: 1.1...1.5  
XK mm: MAB A= 0,8  
XL mm: (MIKRO.)  
Ya mm: 30.3...34.3  
Yb mm: 64.1...76.9

#### Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



Z = Absolute delivery

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R652-1
Type number : 0 460 484 104
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : F8Q-646

Power KW: 45

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.50...3.90
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 31.0...32.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
Del. quantity cm3/
> 1000S.: 7.50...11.5
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 2.5...3.5
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
> 1000S.: 21.50...27.50
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.0...60.0
mind> 1000S.: 40.0
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 6.5...12.5 \*
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250  
TD-travel  
difference> mm: - 0.6...0.8 \*  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 0.80...1.60  
> mm: (0.60...1.80)  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
TD travel mm: 3.50...3.90  
> mm: (3.20...4.20)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
TD travel mm: 5.70...6.50  
> mm: (5.50...6.70)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure> bar: 3.30...3.90  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Supply-pump  
pressure> bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Supply-pump  
pressure> bar: 7.20...7.80  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm<sup>3</sup>/10s: (26.70...101.10)  
2nd speed 1/min: 2250  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2950  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...5.00  
> 1000s.: (0.00...5.00)  
2nd speed 1/min: 2650  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 5.5...13.5  
> 1000s.: (4.5...14.5)  
3rd speed 1/min: 2450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 21.5...27.5  
> 1000s.: (20.5...28.5)  
4th speed 1/min: 2250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 31.1...33.1  
> 1000s.: (29.8...34.4)  
5th speed 1/min: 2000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 31.50...33.50  
> 1000s.: (30.20...34.80)  
6th speed 1/min: 1625  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 29.5...32.5  
> 1000s.: (28.7...33.3)  
8th speed 1/min: 1250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 31.0...32.0  
> 1000s.: (29.2...33.8)  
9th speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 30.4...33.4  
> 1000s.: (29.6...34.2)

Electr. shutoff:

1st speed 1/min: 410  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 410  
Shutoff

electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 7.50...11.5  
> 1000S.: (5.5...13.5)  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (2.5)

#### High Idle:

1st speed 1/mi: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 7.0...11.0  
> 1000S.: (5.0...13.0)

#### Rest delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 1.0...5.0  
> 1000S.: (1.0...5.0)

#### Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/ : - 6.0...8.0 #  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/: 2.0...8.0 " Z  
difference> 1000S.: -  
Shutoff  
electromagnet Volt: 12  
3rd speed 1/min: 1250  
Charge press. hPa: ALFB  
Inj.-qty. cm<sup>3</sup>/: 2.0...8.0 Z  
difference> 1000S.: (12 V)  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1250  
TD-travel : - 1.2...1.6 "  
difference> mm: - (1.1...1.7)  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: ALFB  
TD-travel : 0.0...0.6  
difference> mm: (12 V)  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Supply pump-

pressure > : - 0.1...0.3 #  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

#### Automatic starting fuel delivery:

1st speed 1/min: 310  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 25.0...45.0  
> 1000S.: -

2nd speed 1/min: 210  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.0...75.0  
> 1000S.: -

4th speed 1/min: 110  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...70.00  
> 1000S.: -

#### Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.3...5.5  
MS mm: 1.1...1.5  
XK mm: MA $\beta$  A= 0,8  
XL mm: (MIKRO.)  
Ya mm: 30.3...34.3  
Yb mm: 64.1...76.9

#### Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Z = Absolute delivery

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 s.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 15.03.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2400R677
Type number : 0 460 484 108
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.6 L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 144.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 3.40...3.80
AFB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.30...6.90
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm3/
> 1000s.: 31.5...32.5
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000s.: (3.0)

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Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000s.: 13.0...17.0
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 2550
Del. quantity cm3/
> 1000s.: 16.0...22.0
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 31.5...61.5
mind> 1000s.: 31.5
KSB/AFB
Valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 1.20...2.40

> mm: (0.80...2.80)  
 KSB/AFB  
 valve > Volt: -  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1000  
 TD travel mm: 1.40...2.20  
 > mm: (1.10...2.50)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 TD travel mm: 3.40...3.80  
 > mm: (3.00...4.20)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 2400  
 TD travel mm: 6.2...7.0  
 > mm: (5.9...7.3)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
 Supply-pump  
 pressure> bar: 3.60...4.20  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1500  
 Supply-pump  
 pressure> bar: 6.30...6.90  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 2400  
 Supply-pump  
 pressure> bar: 9.00...9.60  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 600  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 44.40...88.80  
 quantity> cm3/10s: (29.40...103.80)  
 2nd speed 1/min: 2400

KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.00  
 quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2800  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 2nd speed 1/min: 2650  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 4.0...12.0  
 > 1000S.: (3.0...13.0)  
 3rd speed 1/min: 2550  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.0...23.0  
 > 1000S.: (16.0...24.0)  
 4th speed 1/min: 2400  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 28.0...30.0  
 > 1000S.: (27.0...31.0)  
 5th speed 1/min: 1500  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 31.50...32.50  
 > 1000S.: (30.0...34.0)  
 6th speed 1/min: 600  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 24.0...27.0  
 > 1000S.: (22.5...28.5)

Electr. shutoff:

1st speed 1/min: 475  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

Shutoff  
electromagnet>volt: -  
KSB/AFB  
valve > Volt: 12

Idle delivery:

1st speed 1/min: 400  
>KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 13.0...17.0  
> 1000S.: (9.5...20.5)  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (3.5)  
2nd speed 1/min: 300  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 24.0...30.0  
> 1000S.: (21.5...32.5)  
3rd speed 1/min: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 32.0...42.0  
> 1000S.: -  
2nd speed 1/min: 500  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 19.5...29.5  
> 1000S.: -  
4th speed 1/min: 100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 32.50...62.50  
> 1000S.: -

Shutoff electromagnet:

Cut-in

N08

>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 1.6...2.0
Ya	mm: 39.4...41.4
Yb	mm: 45.8...58.7

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU  
Edition : 11.03.96  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/8F2500R425-13  
Type number : 0 460 484 109  
Customer Part-No. :

Customer-specific information  
Customer : PSA

Engine : XUD9 A L3

Power KW: 51

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 0.3  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

N09

Setting value mm: 3.30...3.70  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 29.7...30.7  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 400  
Del. quantity cm3/  
> 1000S.: 12.0...14.0  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.0  
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 4.5...5.5  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650  
Del. quantity cm3/  
> 1000S.: 9.00...13.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 46.00...48.00  
mind> 1000S.: 39.50  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1250  
Inj.-qty. cm3/

difference> 1000S.: -4.0...10.0 \*  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1250  
TD-travel  
difference> mm: - 0.9...1.1 \*  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 0.40...1.20  
> mm: (0.10...1.50)  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
TD travel mm: 3.30...3.70  
> mm: (2.80...4.20)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
TD travel mm: 7.20...8.00  
> mm: (6.90...8.30)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure> bar: 3.30...3.90  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Supply-pump  
pressure> bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2200  
Supply-pump  
pressure> bar: 8.20...8.80  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm3/10s: (26.70...101.10)  
2nd speed 1/min: 2200  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00

quantity> cm3/10s: (40.60...154.00)  
Delivery-quant. and breakaway char.:

1st speed 1/min: 2900  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
2nd speed 1/min: 2650  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 9.0...13.0  
> 1000S.: (7.0...15.0)  
3rd speed 1/min: 2500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 19.5...25.5  
> 1000S.: (17.5...27.5)  
4th speed 1/min: 2200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 32.0...34.0  
> 1000S.: (30.8...35.2)  
5th speed 1/min: 1250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 29.70...30.70  
> 1000S.: (28.00...32.40)  
6th speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 29.8...32.8  
> 1000S.: (28.3...34.3)

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 12.0...14.0  
> 1000S.: (9.0...17.0)  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

High Idle:

1st speed 1/mi: 475  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 8.50...10.5  
> 1000S.: (5.5...13.5)

Rest delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 4.5...5.5  
> 1000S.: (3.0...7.0)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm3/ : - 5.0...7.0 #  
difference> 1000S.: - (4.0...10.0)  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Inj.-qty. cm3/: 2.0...8.0 " Z  
difference> 1000S.: -  
Shutoff  
electromagnet Volt: 12  
3rd speed 1/min: 1250  
Charge press. hPa: ALFB  
Inj.-qty. cm3/: 2.0...8.0 Z  
difference> 1000S.: (12 V)  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):  
1st speed 1/min: 1250  
TD-travel : -2.7...3.7 "  
difference> mm: -(2.6...3.8) "  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: ALFB  
TD-travel : 0.0...0.6  
difference> mm: (12 V)

SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1250  
Supply pump-  
pressure > : - 0.1...0.3 #  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Supply pump-  
pressure > : -1.2...1.8 "  
difference> bar: -(1.1...1.9) "

Shutoff

electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 20.4...22.4  
> 1000S.: (17.4...25.4)

Automatic starting fuel delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 20.0...40.0  
> 1000S.: -

2nd speed 1/min: 225  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.0...71.0  
> 1000S.: -

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 46.00...48.00  
> 1000S.: (39.5...54.5)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: -  
MS mm: 1.3...1.5  
XK mm: MIKRO.  
XL mm: MASS A=0.8  
Ya mm: 27.8...31.8  
Yb mm: 74.0...85.0

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control

lever on drive end

$Y_b$  = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 11.03.96
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2100R679
Type number : 0 460 434 112
Customer Part-No. :

Customer-specific information
Customer : FIAT

Engine : X8/96 M720 DT

Power KW: 54

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 5.70...6.10
AFB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 7.00...7.60
KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Del. quantity cm3/
> 1000S.: 43.30...44.30

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
> 1000S.: 12.3...16.3

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
> 1000S.: 28.20...34.20

KSB/AFB
valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...80.00
mind> 1000S.: 50.00

KSB/AFB
Valve > Volt: 12
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference> 1000S.: 11.0...17.0 \*
KSB/AFB
valve > Volt: 12
Shutoff

electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: 0.70...0.90  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
TD travel mm: 2.40...4.40 B  
> mm: (1.90...4.90)  
KSB/AFB  
valve > Volt: -  
electromagnet>Volt: 12  
2nd speed 1/min: 300  
TD travel mm: 2.00...2.60 A  
> mm: (1.70...2.90)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 600  
TD travel mm: 3.40...4.40  
> mm: (1.90...4.90)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
TD travel mm: 2.90...3.70  
> mm: (2.60...4.00)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1500  
TD travel mm: 5.70...6.10  
> mm: (5.30...6.50)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
6th speed 1/min: 2100  
TD travel mm: 8.50...9.30  
> mm: (8.20...9.60)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1500  
Supply-pump  
pressure> bar: 7.00...7.60  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Supply-pump  
pressure> bar: 5.60...6.20  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2100  
Supply-pump  
pressure> bar: 8.50...9.10  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm3/10s: (26.70...101.10)  
2nd speed 1/min: 2100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2800  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
2nd speed 1/min: 2600  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 9.40...17.4  
> 1000S.: (8.40...18.4)  
3rd speed 1/min: 2400  
KSB/AFB  
valve > Volt: 12  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm3/: 28.2...34.2  
> 1000S.: (26.2...36.2)  
4th speed 1/min: 2100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 42.1...45.1  
> 1000S.: (41.3...45.9)  
5th speed 1/min: 1500  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 43.30...44.20  
> 1000S.: (41.80...45.80)  
6th speed 1/min: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 41.1...44.1  
> 1000S.: (40.3...44.9)  
7th speed 1/min: 600  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 40.1...43.1  
> 1000S.: (39.3...43.9)

Electr. shutoff:

1st speed 1/min: 425  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -  
KSB/AFB  
valve > Volt: 12

Idle delivery:

1st speed 1/min: 425  
>KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 12.3...16.3  
> 1000S.: (10.3...18.3)  
Dispersion cm3/: 2.5  
> 1000S.: (2.5)  
2nd speed 1/min: 500  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
3rd speed 1/min: 300  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 42.0...47.0  
> 1000S.: (40.0...49.0)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Inj.-qty. cm3/ : 9.0...11.0 "  
difference> 1000S.: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Inj.-qty. cm3/: 2.0...8.0 # Z  
difference> 1000S.: (1.00...9.00)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):  
1st speed 1/min: 1500  
TD-travel : 0.50...0.90 #  
difference> mm: (0.30...1.10)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1500  
Supply pump-  
pressure > : 0.10...0.30 "  
difference> bar: (0.10...0.30)  
Shutoff  
electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.

terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 7.80...9.80

> 1000s.: (6.3...11.3)

Automatic starting fuel delivery:

1st speed 1/min: 525  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...55.00  
> 1000s.: -

2nd speed 1/min: 400  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 52.00...72.00  
> 1000s.: -

4th speed 1/min: 100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 50.00...80.00  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 4.8...5.0
MS	mm: 1.1...1.5
Ya	mm: 36.0...38.0
Yb	mm: 63.4...71.4

Ajustement Potentiometer:

Angle for  
pot. > °: 25.0  
Supply voltage  
pot. > volt: 5.0  
Output volt  
pot. > volt: 2.04

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN  
Edition : 08.12.92  
replaces : -  
Calibrating oil : ISO 4113  
  
Injection pump : VE4/9F2200R153-2  
Type number : 0 460 494 303

Customer-specific information  
Customer : RNUR

Engine : J8S - 738

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1400  
Charge press. hPa: 800  
Setting value mm: 4.00...4.40  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 1400  
Charge press hPa: 800

Setting value bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12

## Full-load del. with charge press.:

Speed 1/min: 1400  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 47.00...48.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2,5  
> 1000S.: (3.0)

## Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 37.00...38.00  
Shutoff  
electromagnet>Volt: 12

## Low-idle speed regulation

Speed 1/min: 425  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.00...11.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 2.5  
> 1000S.: (3,5)

## Full-load speed regulation

Speed 1/min: 2400  
Charge press hPa: 800  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 23.00...29.00  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: -  
mind> 1000S.: 60.0  
Shutoff  
electromagnet>Volt: 12

## Inspection-pump test specifications Test specifications in parentheses

## Timing-device characteristic:

1st speed 1/min: 2000  
Charge press hPa: 800  
TD travel mm: 6.20...7.00  
> mm: -  
electromagnet>Volt: 12

2nd speed 1/min: 1400  
Charge press hPa: 800  
TD travel mm: 4.00...4.40  
> mm: (3.50...4.90)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 800  
TD travel mm: 1.90...2.70  
> mm: (1.60...3.00)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1800  
Charge press hPa: 800  
TD travel mm: 5.70...6.50  
> mm: (5.40...6.80)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2000  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 6.90...7.50  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1400  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 600  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 2.70...3.20  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.6...83.3  
quantity> cm3/10s: (26.6...98.3)  
2nd speed 1/min: 2000  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.5...138.8  
quantity> cm3/10s: (40.5...154.8)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting

point> hPa: 200  
LDA-stroke mm: 4.5  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 41.00...42.00  
> 1000S.: (38.50...44.50)  
2nd speed 1/min: 2700  
Charge press. hPa: 800  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: -  
3rd speed 1/min: 2500  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.50...17.50  
> 1000S.: -  
4th speed 1/min: 2400  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 23.00...29.00  
> 1000S.: (22.00...30.00)  
5th speed 1/min: 2000  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 43.40...45.40  
> 1000S.: (42.10...46.70)  
6th speed 1/min: 1400  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 47.00...48.00  
> 1000S.: (45.20...49.80)  
7th speed 1/min: 1000  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 44.90...47.90  
> 1000S.: (43.40...49.40)  
8th speed 1/min: 600  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.00...38.00  
> 1000S.: (34.50...40.50)

Electr. shutoff:

1st speed 1/min: 425  
Charge press. hPa: -  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: -  
Shutoff  
electromagnet>volt: 12

Idle delivery:

1st speed 1/min: 425  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 7.00...11.00  
> 1000s.: (5.00...13.00)  
2nd speed 1/min: 660  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: -  
3rd speed 1/min: 520  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 3.00...7.00  
> 1000s.: (1.00...9.00)

Automatic starting fuel delivery:

1st speed 1/min: 300  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 20.00...40.00  
> 1000s.: -  
2nd speed 1/min: 180  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...100.00  
> 1000s.: -  
3rd speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 60.00...100.00  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS	mm: 1.3...1.7
SVS max.	mm: 3.6
LDA stroke	mm: 4.5
XK	mm: 17.0...19.0
XL	mm: 10.3...13.7

Remarks:

\* Correction at adjusting nut

Operate control lever after each

manifold-pressure compensator pressure change.